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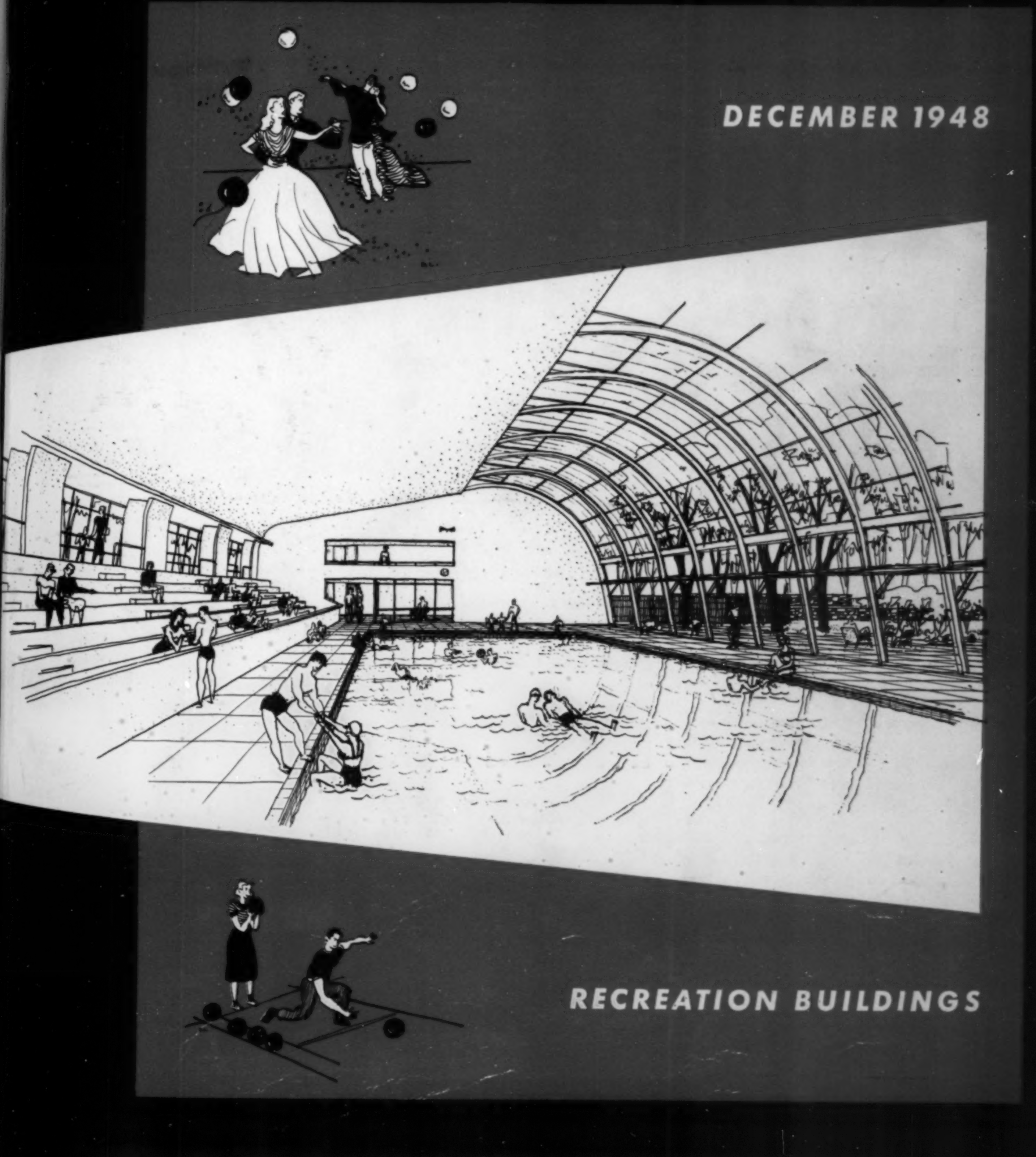

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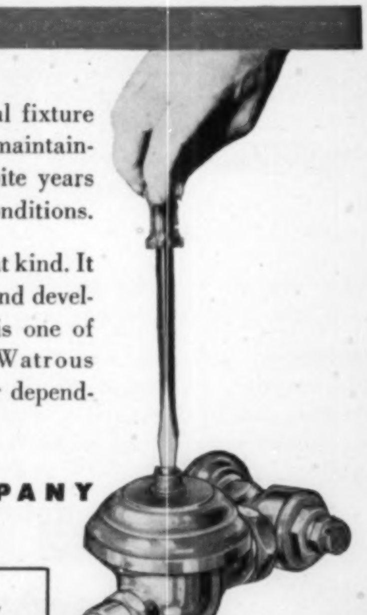

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THE RECORD REPORTS

Election Upset Turns Construction Industry's Thoughts toward Renewed Controls, Passage of Broad Housing Bill, Government Investigations

The election upset a month ago has the construction industry worrying in terms of allocations, priorities, controls. Evaluating the place of contractors, engineers and architects in the economy that lies ahead naturally bases itself on too-fresh reminiscences of federal control following the war.

Certainly there lies ahead for construction some repetition of the regulation pattern. This seems inevitable in view of the Administration proposals during the past two years on housing and other comprehensive measures which failed to find ready reception with a Republican-controlled Congress. Now that the Democrats hold the reins undisputedly, there remains very little doubt that the Democratic policies on important construction matters will be made an early matter of business in the 81st Congress.

The stumbling blocks to the Truman proposals largely are removed now. For example, the broad Taft-Ellender-Wagner housing bill which was stymied in the House after Senate passage no longer will run against opposition in the Banking or Rules committees. The key positions will be filled by Democrats and full party support of this and other Administration policies on Capitol Hill is assured.

Who Will Lead the Fight?

The picture is not entirely clear at this time concerning the significant Committee positions in Congress beyond the knowledge that they will be filled by Democrats. Of prime interest to the housing industry are the chairmanships of the Banking and Currency groups in both chambers. Whereas Jesse M. Wolcott, Michigan Republican, successfully steered the comprehensive housing bill away from his House Banking Committee on occasions, and always guided carefully the legislation voted to the floor, that group now will be under the direction of a Democratic chairman, probably Brent Spence of Kentucky. Rep. Spence is widely recognized as an ardent champion of federal assistance in housing construction, favoring slum clearance, urban redevelopment and government participation in the building of low-cost housing for low-income families.

Over on the Senate side, Charles Tobey, New Hampshire Republican who chairmans the powerful Banking Committee, will give up that position. Sen. Robert F. Wagner of New York is in line for the job, but he has been in ill health, appearing on the Senate floor only twice during the last session. This situation means that the leadership of the Senate Banking group could go to Burnet R. Maybank of Charleston, S. C., who was up for re-election this year. Maybank is known as a liberal who was elected to finish the unexpired term of Hon. James F. Byrnes in 1941, and re-elected in 1942 and again this year.

The chairmanship of the important House Rules committee, held by Leo E. Allen of Illinois, now would go to Adolph J. Sabath, also an Illinoisan. Sabath is known to favor the asserted Administration housing policies; this is of significance because the Rules group holds the power to block any bills and hold them from House consideration, even though they have been given other committee approval. This is precisely what happened to the T-E-W measure in one instance.

Actual committee appointments will not be known until after the first of the year, but on the basis of current speculation that is the way the leadership will formulate after the caucus meetings.

Trade associations, for the most part, gloomily reviewed the election returns and feared they faced a modified repetition of the controlled economy under which industry labored and which industry as a whole fought in the immediate postwar years.

Reorganization Plans in Doubt

The surprising Democratic victory also cast the proposed reorganization of the construction activities of government in a different light. The Herbert Hoover Commission on reorganization of the executive branch was voted into being by a Republican Congress, though it is manifestly bipartisan in its establishment and operation. Now a task force of the Hoover Commission, a task force headed by Robert Moses, New York Park Commissioner, has completed its controversial plan to bring the construction functions of federal government, including civil works of the Army Engineers, into a central agency. This would be a new Department of Public Works with cabinet status.

Congress will have to decide what to do with the plan when it is presented after the first of the year along with other suggestions for changes in the Executive branch.

The Moses plan for rearranging construction activities is said to embrace three principal points. These are outlined as:

1. The creation of a Department of Public Works directed by a Secretary receiving $25,000 a year. There would be an undersecretary paid $20,000 and four assistant secretaries at $15,000 each.

2. Jurisdiction over flood control and rivers and harbors construction would be removed from the Army Corps of En-

(*Continued on page 10*)

— *Drawn for the* RECORD *by Alan Dunn*

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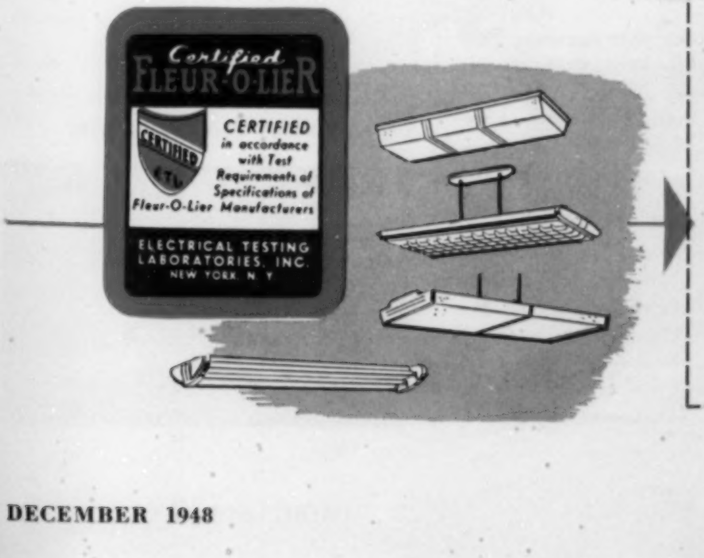
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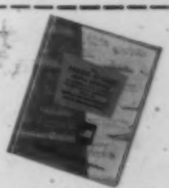

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gineers and transferred into the new Department of Public Works where it would be handled primarily by officers of the Army, the Navy and the Air Corps assigned to the new department. The Army Corps has been supervising civil functions construction since 1824.

3. The grouping of all construction activities of the federal government, now distributed among dozens of separate agencies, under the Department.

If the Moses proposal is given serious consideration by Congress, chief point of tension will develop around the civil functions issue. There is already pro and con discussion of the matter in Washington, and the Hoover report has not been made public.

The New York planner is said to argue the point in a memo to Hoover which claims that some of the work now handled by the Army is not rightfully within its jurisdiction. The Moses memo is quoted in part as saying: "The Army engineers continue to control part of the rivers and harbors and flood control spheres at a time when reclamation in the broad sense, power development and other phases of engineering work involving rivers and harbors should be a part of the same program."

Opponents to any change in the present long-standing setup say a change would endanger the nation's defense plans by taking the large construction projects out of the hands of skilled engineers now familiar with their planning, construction and administration. Moses, on the other hand, claims benefits could as easily come in this respect from the arrangement he proposes.

The memorandum states: "The argument that rivers and harbors work can only be directed by the Army engineers becomes even more absurd when it is realized that fewer than 200 Army engineers are involved and the remainder of the personnel under their control numbering over 30,000 are civilians who supply most of the detailed knowledge and continuing direction."

G.I. Mortgages Lose Ground

Agency men who are interested in G.I. building point out that the secondary market for G.I. mortgages has deteriorated since last year. No doubt this partly reflects the general credit situation. Bankers expect a rise in long-term interest rates and so are putting their money into short-term credit for the time being. They are waiting. But, say the officials, the G.I. mortgage has had harder sledding than other long-term commitments. Since the banks can't easily dispose of G.I. mortgages, they are entering into fewer of them.

One of the reasons, it is said, is the absence of standard appraisals for G.I. houses. The 1948 Housing Act called for use of FHA standards when it authorized RFC to back the market, but it did not tell FHA to do the appraising. A lender reselling to the RFC must certify that the home is up to FHA requirements, buts lacks FHA's word that his certification is accurate. Lenders don't like that.

Veterans Administration has arranged to let its local appraisers carry the ball. They will make inspections with FHA's rule-book in front of them. The RFC has accepted this system, taking the word of the VA appraisers.

This alone is not expected to go far in reviving building for veterans. There is still the question of interest rates. Agencies continue to discuss it without adding new ideas to the discussion. Veterans Administration would like to see the mortgage rate raised, as Congress allowed, but other agencies still oppose.

Although the RFC published regula-

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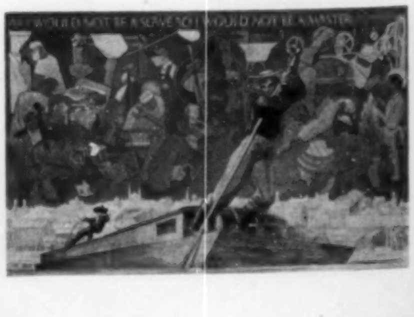
"Portrait of a City's Character," mural painted by Stuyvesant Van Veen for the Lincoln National Bank of Cincinnati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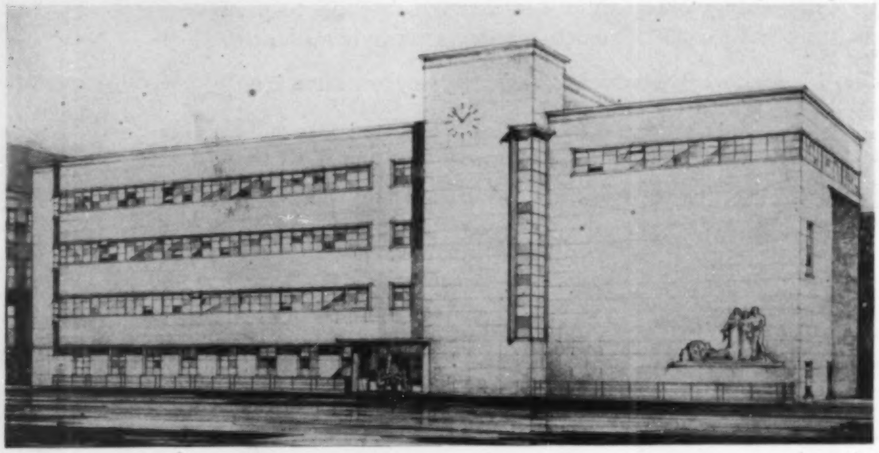

The University of Toronto's new Mechanical Building, designed by Allward and Gouinlock, Architects, has a 200- by 600-ft. basement laboratory, a top-floor machine drafting room

NEWS FROM CANADA

By John Caulfield Smith

Building Kettle Boiling

Following a leveling off during the summer, construction contract awards have resumed their upward trend. According to the authoritative MacLean Building Reports, they reached $79.7 million in September, or $3.5 million more than in the same month last year. The total for the first nine months of 1948 was $744.2 million compared with $548.2 million for the first nine months of 1947. Housing and commercial construction continued high in September, but engineering and industrial awards were down compared to the same month last year.

Housing In Seven Countries

House building activity, building material production, employment of building labor and building costs in seven countries are reviewed in the latest issue of *Housing Progress Abroad*, a quarterly publication of the Central Mortgage and Housing Corporation. The countries dealt with are the United States, the United Kingdom, Australia, New Zealand, South Africa, Sweden, and Canada.

The report notes that between 1939 and 1947 Canada's house-building activity increased by 62 per cent. This rate was higher than that of any of the countries under review with the exception of the United States which showed a rise of 65 per cent.

Large increases of house-building in Canada and the United States were accompanied by significant increases in the output of building materials. Between 1939 and 1947, the production of lumber in Canada rose 30 per cent, bricks 77 per cent and cement 112 per

(*Continued on page 154*)

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(*Continued from page 10*)

tions governing credit for prefabricators, it has not stimulated much interest among banks. Manufacturers are interested; naturally they would be. It is still uncertain whether they will be able to do much borrowing. The chief trouble is that the banks are not especially interested in finding new business and so can't get enthusiastic.

Research Funds Asked

The housing agencies will ask the next Congress for more money to support research into housing. The actual research will, of course, be farmed out, partly to the Bureau of Standards but mostly to universities. With present appropriations, a few projects have been financed and are said to show encouraging progress. Most of those under way or planned for next year relate either to standardizing components or to metal construction. There is also work on the strength and capacities of various materials.

It is pointed out that a code standardizing plumbing equipment, promulgated several months ago, is winning acceptance. Two cities have adopted it and more than 15 expect to before the year ends. Bureau of Standards hopes to do more work on key components.

The setting of standards for key components is expected to do something to bring costs down. Numbers of models are reduced, which lets dealers carry smaller inventories. Lower inventories, in turn, mean lower overhead. Builders need worry less about types of components to be used: there are fewer types to worry about. Finally, it is cheaper to produce standard components.

Government Demand High

Evidently, key materials will remain tight even if, as some officials expect, housing volume declines next year. The Administration has been working for months on a new Lend-Lease program, said to be backed by both parties. The amount is estimated at $3 billion. It will use up steel and other major materials.

Marshall Plan shipments are shifting from food and clothing to industrial materials. Orders for industrial equipment have been steadily rising and, say the officials in that agency, will continue to. This will put more pressure on the market.

Finally and most important, the military program is just getting into stride. Appropriations made last spring are first being spent. There are orders on behalf of airplane, ordnance and other

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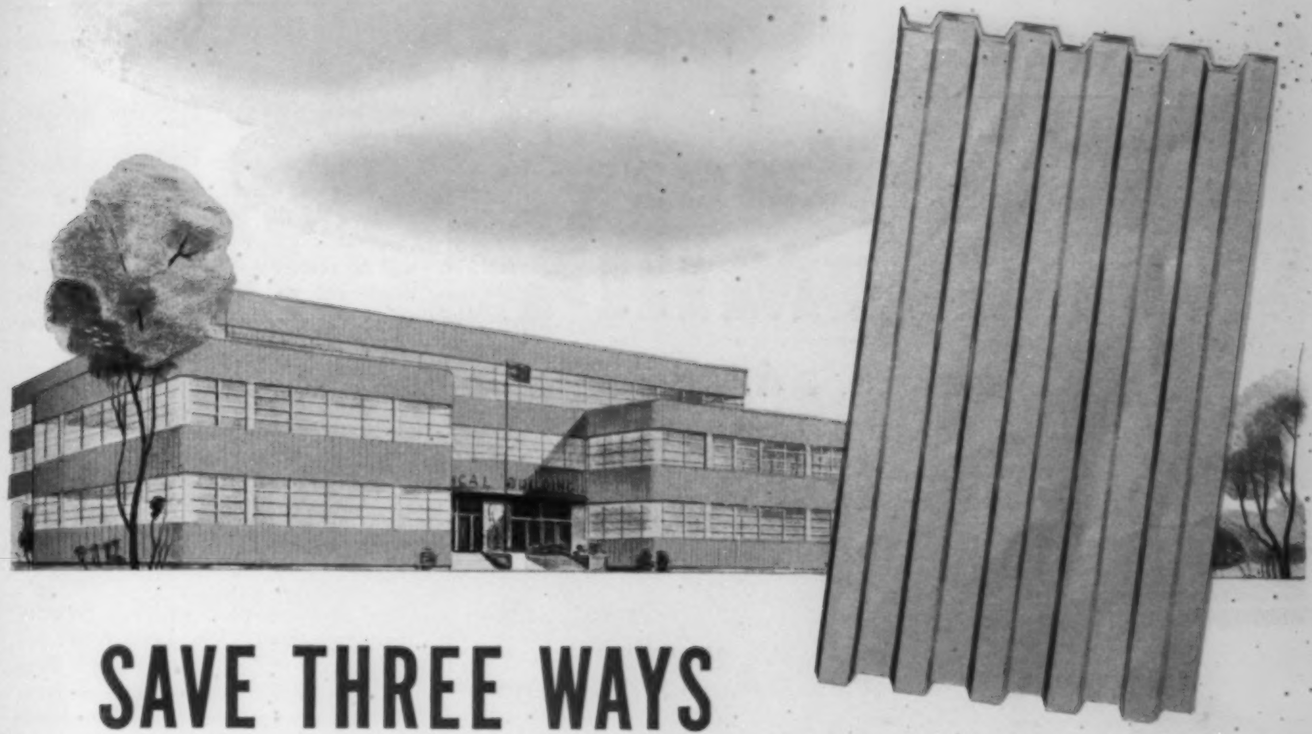

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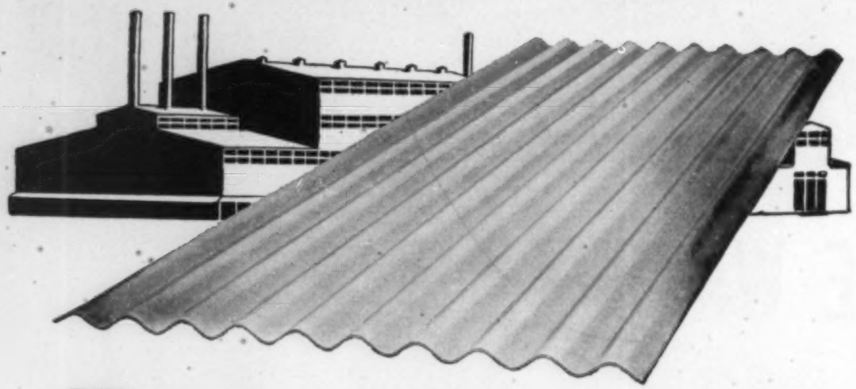

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THE RECORD REPORTS

(*Continued from page 12*)

programs, which are high now and will go higher.

All of these, taken together, reinforce the forecasts made last spring that regardless of the party to be in power, there is a strong chance that controls will be restored in 1949. It looks as if there will be greater government demand than can be supplied by mere spending of money.

Will Controls Return?

Demand for controls may come in two forms, which could create confusion. There is the prospect, first, that existing government orders will have to be handled through some system of priorities and allocations. The Army officers talk about it.

In addition, the National Security Resources Board has worked out another system of controls for use if there is war. This is a complete job covering just about everything. Under new labels it revives all of the old agencies and their rules, including a rehash of the famous L-41.

Some of the top officials feel that it should be offered at once to Congress. It would be enacted, but not put into force. Then, in the event of war, all of the controls would become effective on an order by the President. Some of the Congressional leaders are said to have recommended doing the job right away.

Debate on relatively minor curbs for instant use and others that are much broader and more detailed but would be used only-in-case may be simultaneous. People would have to testify about both sets, which are bound to overlap here and there.

Basing Points Modified

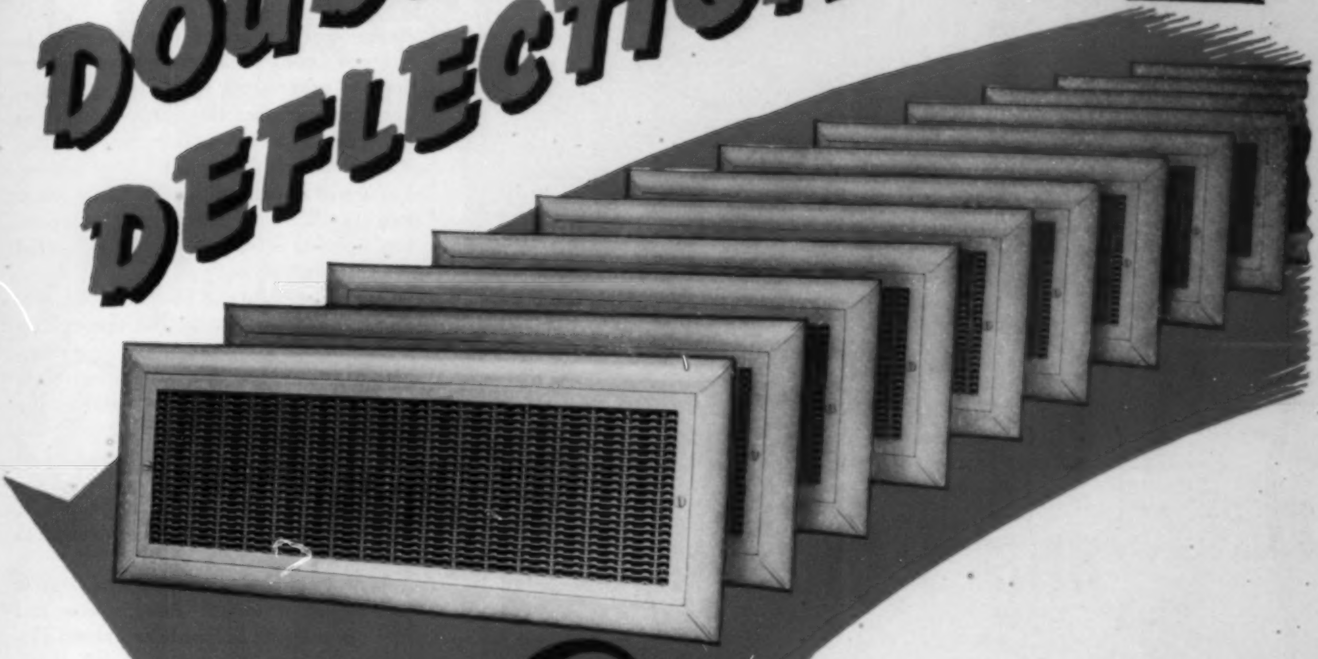
The Federal Trade Commission has theoretically modified its attitude to basing points. A single shipper, evidently, may use them — if the rest of the industry is doing it differently. Such a case is not known to exist; in every industry everybody or nobody prices F.O.B. basing point. The Capehart Committee almost certainly will recommend some change in law letting present pricing systems continue — unless conspiracy is proved without the fact of basing points themselves being a major element of the proof.

Probes Increasingly Likely

It now seems pretty certain that the government paths ahead include one being laid out for intensified scrutiny of the building industry and its operations on several fronts. Most evident is the

(*Continued on page 16*)

DOUBLE DEFLECTION



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BULLETIN
F-3717

BARBER-COLMAN COMPANY
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Summer
Winter

STYLING CAN CHANGE WITH THE SEASONS WHEN BASED ON *Oak Floors*

In your houses, owners can change from winter to summer furnishings and still have harmonious rooms—provided the flooring is oak.

The mellow luster of this rich wood blends subtly with the soft, cool pastels of summer, and glows warmly amid the bolder tones of winter decor. Seasonal styling becomes far more flexible and economical when such an adaptable flooring is used.

The same adaptability to new ideas and styles lasts for the life of the home. New wallpaper or paints meet no discords from beautiful oak. The natural grain and texture form a harmonious base for whatever colors and styling may be chosen in replacing the original decor.

The most versatile floors you can suggest—and at the same time, those with the most enduring beauty—are oak.

ASK FOR ARCHITECTS' DATA BOOK—*which gives quick and usable information for specifying, laying, finishing and maintaining oak floors. Available from your local oak flooring dealers or from the National Oak Flooring Manufacturers' Association, 814 Sterick Building, Memphis, Tenn.*

OAK FLOORS
BEAUTY · DURABILITY
ADAPTABILITY · ECONOMY

THE RECORD REPORTS

(*Continued from page 14*)

stepped-up probe of discrepancies as charged in the veterans' emergency housing program. A whirlwind of controversy surrounding this subject threatens to break out into something approaching a national public scandal this winter. Failure of home builders to follow plans and specifications in constructing veterans' housing is but one of the often-cited violations involved.

There are plenty of instances of faulty postwar home construction throughout the land, but in fairness to conscientious contractors it is pointed out that these are relatively few in proportion to the total number of homes built, put under roof in the emergency program. And all officials connected with compliance operations say they have found builders, for the most part, willing and ready to rectify the wrongs.

With the opening of the 81st Congress just about a month away, more and more is going to be published about violations in home construction. There are predictions, freely made, that fraud charges will mount up to a climax some time this winter, spilling forth in a flood of publicly-aired complaints far more voluminous than any in evidence since the end of the war.

There are those who fail to realize that only a limited number of homes built, sold to veterans and occupied by veterans are subject to any type of government action, even if they are proved to be in the "shoddy" classification: only priority-built homes. Congress will be criticized for not providing more stringent applications.

One assistant to the Attorney General said the Justice Department was "shocked" in discovering what a small number of cases in all those it has investigated to date actually come under existing law for prosecution. It is feared that only the most glaring types of violation under the Housing Act can be overtaken through the regular legal channels.

Specifications Are Vague

Why is this true? Specifications vaguely drawn are said to be one of the principal reasons. There are specific cases on record where contractors followed plans but these plans did not prescribe definite materials or else they permitted use of materials that failed to satisfy the veteran-owner after the house was occupied. Yet these plans had government approval before the home was built. In many such cases priorities were given the contractor, too. Such instances leave the builder free of guilt and out-

(*Continued on page 18*)

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the new

Durisol

3-IN-1 Insulated Roof Plank

Combines

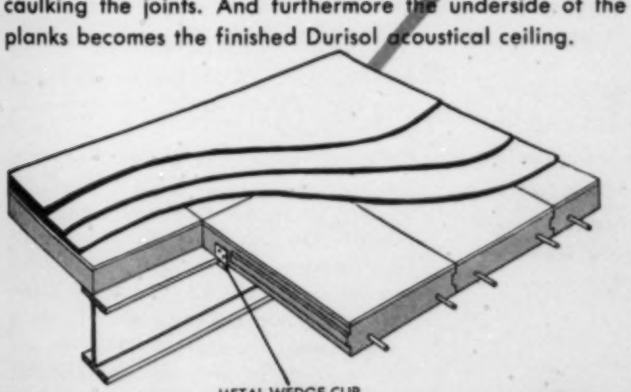
1. ROOF DECK
2. THERMAL INSULATION
3. ACOUSTICAL CEILING

in a single fireproof material at one installation cost

SAVES UP TO 20%
over equivalent flat roof construction!

The Durisol Insulated Roof Plank combines in one unit *all* the components needed for the roof deck: structural strength, thermal insulation, and cement surface . . . *plus* an unusually efficient acoustical ceiling. Construction costs are thereby reduced to a minimum.

The Durisol insulated roof deck is complete—ready for application of the built-up roofing—after two simple, high-speed operations: attaching planks to the framework, and caulking the joints. And furthermore the underside of the planks becomes the finished Durisol acoustical ceiling.



The Durisol Insulated Roof Plank is made in 3¼" and 4¼" thicknesses (including ¼" cement coating) 16" width with sides tongue-and-grooved, and in lengths to span up to 8'. It is incombustible and supports a live load of 40 pounds per square foot with a high safety factor.

WHAT IS DURISOL?

Durisol is made from chemically mineralized wood shavings combined with Portland cement. In addition to the Insulated Roof Plank, Durisol is also moulded into wall slabs, sheathing, hollow blocks, soffit blocks, and other forms to meet a wide range of construction needs.

Durisol is mould-proof, rot-proof, termite-proof, vermin-proof, and unaffected by moisture. Its high thermal insulating and sound absorbing properties combined with its strength, light weight, and incombustibility make Durisol an outstanding material . . . Durisol opens up unusual possibilities for increasing construction efficiency and reducing construction costs.

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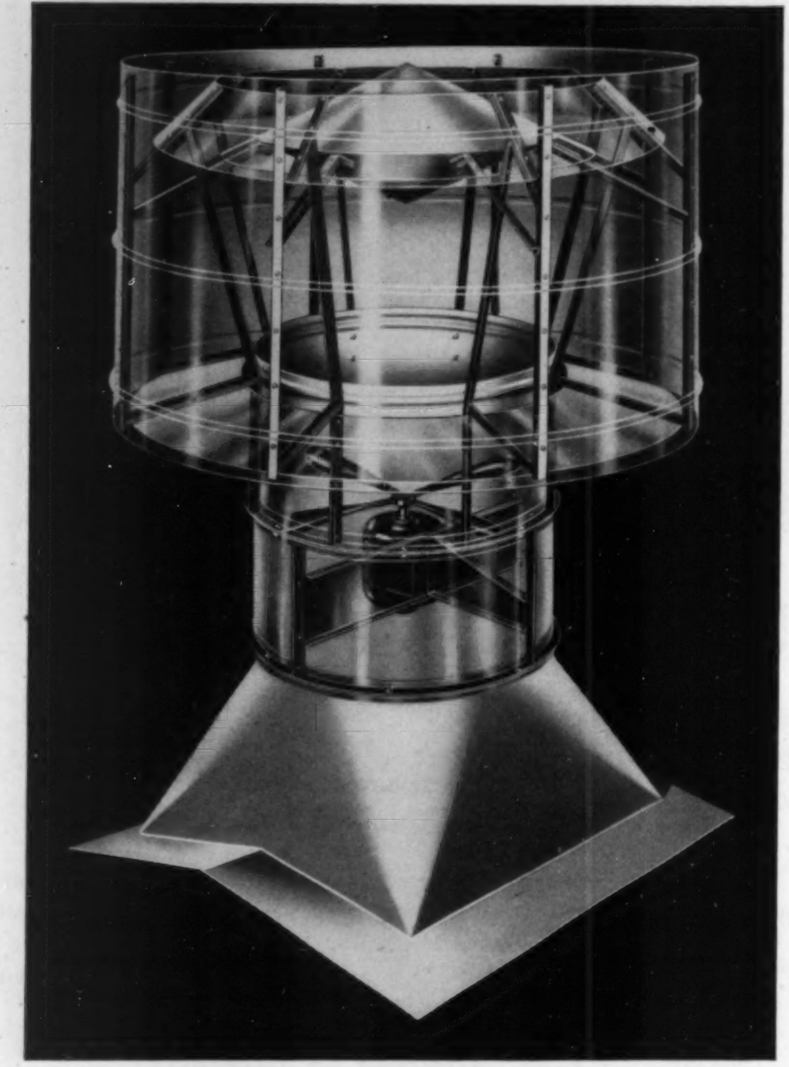

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The Burt Free-Flow Fan Ventilator is a dual-purpose unit. With power off, it provides gravity ventilation usually adequate for normal needs. When occasional production operations create extremely high temperatures or an excess of smoke, dust, fumes, etc., its high velocity electric fan quickly exhausts the extra heat or impurities. Positive ventilation is assured at all times. Write for further information on the versatile Free-Flow Fan and other Burt ventilators. There is a type and size for every need.

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THE RECORD REPORTS

(*Continued from page 16*)

side the jurisdiction of the compliance divisions with only a moral sense of obligation to force corrective measures.

Congress has acted to tighten these provisions of the housing law since it first applied to veterans' housing after World War II; they will be a subject of considerable debate in the forthcoming session according to current signs.

The Office of the Housing Expediter recently buttressed its compliance division staff with the addition of 300 special investigators. This move, and greater concentration on veterans' housing violations by Justice Department attorneys, are expected to increase the tempo of government attention to the subject as the weeks go by. There already have been fines and jail sentences for guilty builders. These have been based on proved faulty construction of veterans' homes built with priorities under the veterans' emergency housing law, and other proved violations such as receipt of over-payments and failure to follow plans. Some 500 constructors have been brought into court. Other thousands have been given an opportunity to make restitution in one way or another — through correcting the evil on site, or by cash refunds.

But all the activity so far is said to be a bare minimum of what the government will undertake. The program definitely is an expanding one at this time and politics is expected to have little influence on its ultimate fulfillment.

Bender Probe Is Full-Scale

Another investigation spotlighting contractors is that carried on by Congressman George H. Bender's (Ohio) Procurement and Buildings subcommittee. Started informally on the basis of information sought out by the General Accounting Office on veterans' re-use housing contracts, the Bender investigation had on it the brand of a full-scale Congressional probe.

By his own assertions, Mr. Bender is out to recover about $200 million, an amount he claims Public Housing Administration "poured down the drain" in over-payments to contractors who erected the re-use housing during the veterans' emergency program. The Ohio Congressman comments: "This is another case where the Administration has given a raw deal to the veteran and to the American taxpayers generally. About $450 million of public monies were involved in this program. A special contract form was worked out under which some 200 contractors throughout the country were allowed, in addition to a

(*Continued on page 20*)

the men who know upholstery best choose Duran

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STANDARDIZED STEEL BUILDING PRODUCTS

THE RECORD REPORTS

(*Continued from page 18*)

fee which represented profit, a fixed overhead for each dwelling unit constructed which far exceeded the actual amounts they spent. . . . I have evidence that PHA officials made practically no attempt to call a halt to this disgraceful situation, taking the position that nothing in the contract prevents the contractor from making an additional profit out of the overhead allowance. This attitude deliberately ignores the language of the contract, which provides that overhead funds expended should approximate the amounts allocated. It shows a callous indifference to the plight of the homeless veterans and to the waste of public funds."

The decision to go ahead with the subcommittee probe was a direct result of the General Accounting Office action. GAO scrutinized 40 of some 450 contracts made during the program and turned up enough evidence of what it considers over-payment to justify the full-dress Congressional handling.

Materials Easier to Get

Apparently the material shortages that plagued contractors in the earlier stages of the veterans' housing program — in the construction of both permanent and temporary housing — are being eased to a great extent. The Department of Commerce October industry report showed building material production breaking all records in August; at a level of 165 on the composite index as compared with 100 as a monthly average for 1939. This was the highest point recorded in the nine and a half years the monthly report has been kept. And in all postwar computations, Commerce finds that 1947 set a new 33-year record for volume of construction materials produced.

As output of building materials makes encouraging progress, the industry is faced with confusion resulting from the Supreme Court decision last April in the now-famous Cement Case. There is strengthening opinion in Washington to clarify the law on allowable pricing methods, as a sort of short cut to clearer understanding for producers, shippers and consumers. In the opinion of most experts, Congress needs to do this to clear the air befogged by the Federal Trade Commission ruling and the subsequent Supreme Court decision upholding it.

This attitude has been expressed by Dr. Melvin T. Copeland, chairman of the Advisory Council of the Senate Trade Policies Committee, the group now struggling with the problem. He says:

(*Continued on page 22*)

at home!

WITH ANY STYLE . . . ANY SIZE . . . HOUSE

CHARLES SCHREIBER, *Architect*

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It is in the imagination of the designer that the full merit of a material reveals itself. This is becoming apparent in the many interesting applications of asphalt shingles to contemporary design coming from architects' offices in all parts of the country.

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The submission of examples of the current use of asphalt shingles in contemporary design by practicing architects is invited—as are also comments, suggestions and questions.

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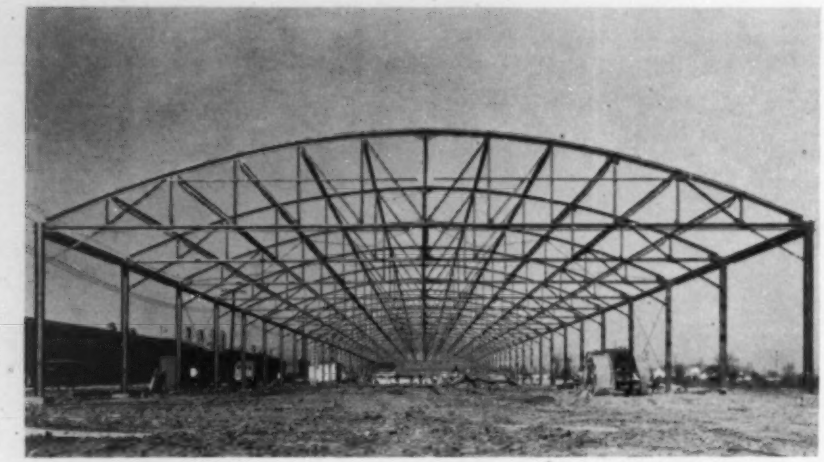

Bowstring Trusses *by*

MESKER STEEL OF Evansville IND.

RIVETING in truss fabrication means positive security and above all simplicity in the finer phases of steel construction.

The Bowstring Truss, a truly original Mesker development, provides greater strength and flexibility to meet every requirement of industrial or commercial construction, wherever clear floor space is required.

THE Mesker Bowstring Truss design eliminates columns. Greater floor space and the resulting finer appearances are but another feature of Mesker design. Mesker in truss fabrication, means safety, means better and standardized construction.

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THE RECORD REPORTS

(*Continued from page 20*)

"If the matter were left to the Federal Trade Commission, the hope for clarification within a helpful period of time would be slim. The Commission proceeds case by case, and one member of the Commission stated, in effect, at the first hearings of the Trade Policies Committee that the law regarding delivered prices can be fully interpreted and understood only after the Commission and the Courts have examined a large number of cases and rendered their decisions. So far, however, the more cases on delivered prices dealt with by the Commission, the more confused the situation has become. What state of confusion the law might be in with a dozen, 50, or 100 more decisions is difficult to imagine.

"The time factor, furthermore, is not unimportant. The Cement Case, for example, was before the Commission and in the courts for a period of about 10 years, at a cost of millions of dollars to the government and to the companies in the industry. Proceedings in the Rigid Steel Conduit Case were started over seven years ago, and that case is now awaiting action by the Supreme Court. If the law on delivered prices cannot be settled until after numerous other industries have been subjected to that sort of treatment, we are in for a dishearteningly long period of confusion. In fact, if the law can be settled only by such long drawn out proceedings in many cases, I fear that it never will be settled. Hence the situation is one which seems clearly to call for action by Congress."

Dr. Copeland's opinion was stated after his Council had entered well into its investigations of the effect of the Supreme Court decision on the nation's economy in general, and how similar decisions might affect the pricing methods of all major businesses. The Council will formulate recommendations for the Senate Committee. The Committee, in turn, will advise Congress on the need for legislation and what form it believes new laws should take.

◆ ◆ ◆

ON THE CALENDAR

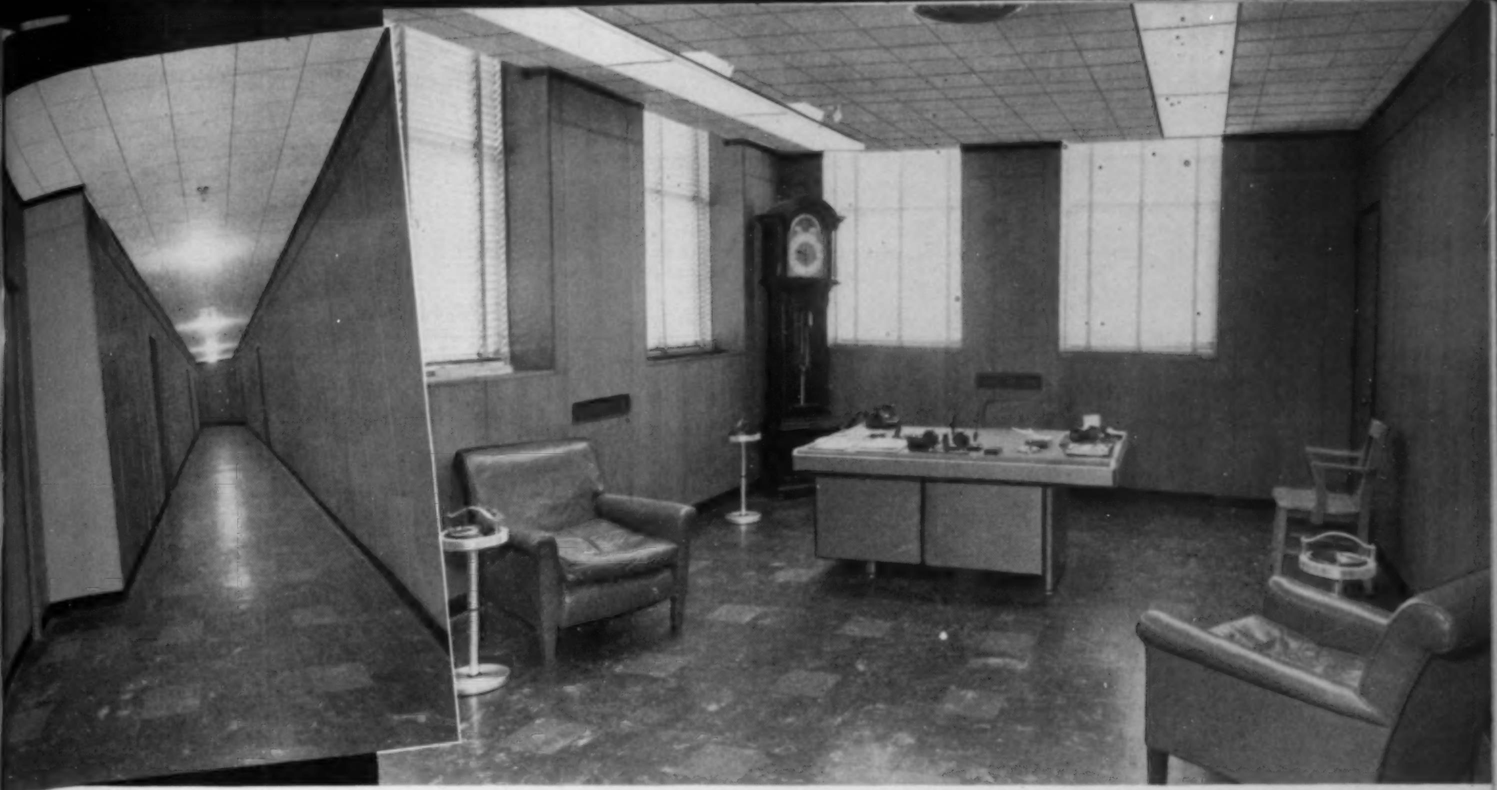
Nov. 4–Jan. 7: "Decorative Arts Today," exhibition of ceramics, textiles, silver, glass, etc., Newark Museum, Newark, N. J.

Jan. 10–14: 3rd National Materials Handling Show, Convention Hall, Philadelphia

Jan. 24–28: 9th International Heating & Ventilating Exposition, International Amphitheatre, Chicago.

Feb. 12–20: 1949 Home Show of St.

(*Continued on page 164*)



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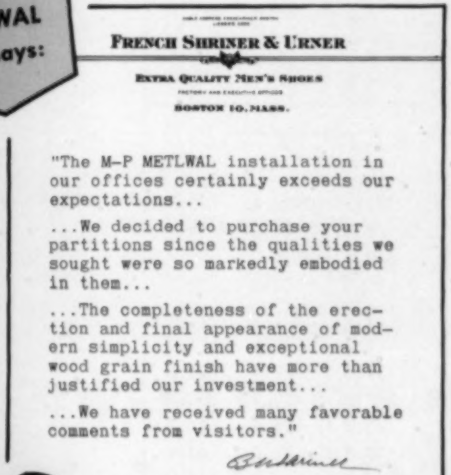
for beauty, movability, durability

Here's what this METLWAL user says:



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"The M-P METLWAL installation in our offices certainly exceeds our expectations...

...We decided to purchase your partitions since the qualities we sought were so markedly embodied in them...

...The completeness of the erection and final appearance of modern simplicity and exceptional wood grain finish have more than justified our investment...

...We have received many favorable comments from visitors."

Mr. B. M. Shriner, President
French, Shriner & Urner
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METLWAL Partitions and Paneling have a lot to offer! Metlwals alone combine distinctive beauty—simple construction—easy maintenance—and rapid installation. They're factory-finished in rich wood grain reproductions or baked enamel . . . will not reflect harsh, metallic light . . . will not chip, crack or craze . . . are Bonderized against rust.

METLWALS are installed in four easy steps by erection crews . . . . (1) attach floor and ceiling channels; (2) insert studs in channels; (3) snap on panels; (4) slip on base. One man can handle a full-size panel. All parts and panels can be cut on the job. No need for plaster in new construction. No filler boards or patchwork. *Only a few standard parts from warehouse stock.* And Martin-Parry's modern production facilities, in our huge new Toledo plant (*one wing shown below*), insure uniform panels for interchangeability . . . long-wearing installations that hold maintenance costs to a new low!

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ALL-FLUSH PANELING
MOVABLE PARTITIONS

68 Years of Service

ENGINEERING AND ERECTING SERVICE AND WAREHOUSE STOCKS FROM COAST-TO-COAST

CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data compiled by E. H. Boeckh & Associates, Inc.

	NEW YORK					ATLANTA				
Period	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel	Residential Brick	Residential Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Commercial and Factory Buildings Brick and Steel
1920	136.1	136.9	123.3	123.6	122.6	122.8	122.9	108.6	109.8	105.7
1925	121.5	122.8	111.4	113.3	110.3	86.4	85.0	88.6	92.5	83.4
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1940	126.3	125.1	132.2	135.1	131.4	91.0	89.0	96.9	98.5	97.5
1941	134.5	135.1	135.1	137.2	134.5	97.5	96.1	99.9	101.4	100.8
1942	139.1	140.7	137.9	139.3	137.1	102.8	102.5	104.4	104.9	105.1
1943	142.5	144.5	140.2	141.7	139.0	109.2	109.8	108.5	108.1	108.7
1944	153.1	154.3	149.6	152.6	149.6	123.2	124.5	117.3	117.2	118.2
1945	160.5	161.7	156.3	158.0	155.4	132.1	133.9	123.2	122.8	123.3
1946	181.8	182.4	177.2	179.0	174.8	148.1	149.2	136.8	136.4	135.1
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
July 1948	252.4	253.6	241.2	245.1	237.4	203.4	206.8	182.5	181.6	180.9
Aug. 1948	255.5	256.4	246.1	250.2	244.2	204.8	208.2	184.7	183.8	183.2
Sept. 1948	257.3	257.6	247.8	252.0	246.4	205.8	209.1	186.3	185.6	184.7
	% increase over 1939					*% increase over 1939*				
Sept. 1948	**108.3**	**110.5**	**89.6**	**88.9**	**89.4**	**138.5**	**151.6**	**95.6**	**90.6**	**95.0**

	ST. LOUIS					SAN FRANCISCO				
1920	118.1	121.1	112.1	110.7	113.1	108.8	107.5	115.2	115.1	122.1
1925	118.6	118.4	116.3	118.1	114.4	91.0	86.5	99.5	102.1	98.0
1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.4	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1940	112.6	110.1	119.3	120.3	119.4	106.4	101.2	116.3	120.1	115.5
1941	118.8	118.0	121.2	121.7	122.2	116.3	112.9	120.5	123.4	124.3
1942	124.5	123.3	126.9	128.6	126.9	123.6	120.1	127.5	129.3	130.8
1943	128.2	126.4	131.2	133.3	130.3	131.3	127.7	133.2	136.6	136.3
1944	138.4	138.4	135.7	136.7	136.6	139.4	137.1	139.4	142.0	142.4
1945	152.8	152.3	146.2	148.5	145.6	146.2	144.3	144.5	146.8	147.9
1946	167.1	167.4	159.1	161.1	158.1	159.7	157.5	157.9	159.3	160.0
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
July 1948	231.3	235.5	210.4	211.3	209.6	222.2	220.4	211.5	217.4	213.6
Aug. 1948	232.6	236.8	212.7	213.4	213.6	223.4	221.6	213.8	219.2	218.1
Sept.1948	234.9	238.1	215.7	218.1	215.7	225.2	222.9	215.7	221.3	219.5
	% increase over 1939					*% increase over 1939*				
Sept. 1948	**113.2**	**122.5***	**81.7**	**82.1**	**81.3**	**113.3**	**124.5**	**83.7**	**81.5**	**88.4**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

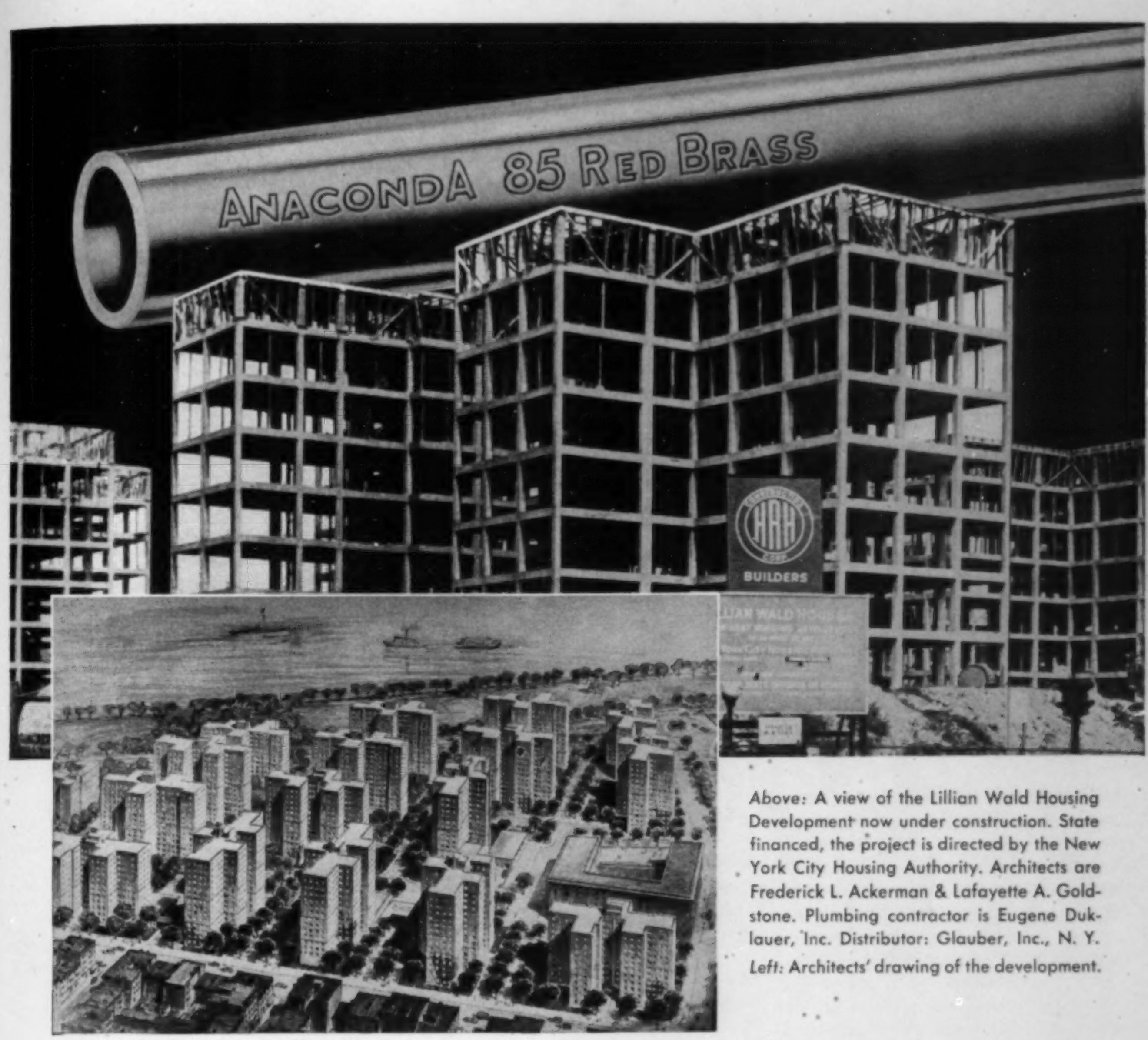
$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

** Erroneously reported for Aug. 1948 as 123.2%; the correct August figure was 121.3%.*



Above: A view of the Lillian Wald Housing Development now under construction. State financed, the project is directed by the New York City Housing Authority. Architects are Frederick L. Ackerman & Lafayette A. Goldstone. Plumbing contractor is Eugene Duklauer, Inc. Distributor: Glauber, Inc., N. Y. *Left:* Architects' drawing of the development.

TWENTY-FIVE MILES OF "85" RED BRASS PIPE

in the Lillian Wald Houses

IN New York City's huge, $22,372,000 Lillian Wald Housing Development there will be 1,861 dwelling units. An estimated 6,954 persons will occupy the four eleven-story and twelve fourteen-story apartment buildings which, with their 7,695 rooms, will cost $14,450,266 to construct.

And to serve these houses with a full flow of clear water for years to come: 130,000 feet of Anaconda "85" Red Brass Pipe, ½" to 6" SPS.

No more trusted material could have been chosen for this important water-carrying job. Anaconda "85" Red Brass Pipe has been in use since 1927, and had undergone ten years of testing before that. Strong, non-rusting and of uniformly fine grain structure, it has become known as the highest quality corrosion-resistant pipe obtainable at a reasonable price.

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REQUIRED READING

WHAT IS A WINDOW?

Windows in Modern Architecture. By Geoffrey Baker and Bruno Funaro. Architectural Book Publishing Co., Inc. (112 W. 46th St., New York 19, N. Y.), 1948. 8½ by 11 in., illus. 144 pp. $8.50.

Since man's innate curiosity and love of sunlight and fresh air make it highly improbable that he ever will accept air conditioning and artificial lighting as a substitute for the window, the architect can look forward to many more years of supplying him with the fenestration he so stubbornly demands. Hence any architect, no matter what type of building he is designing, will find this slim volume on windows of absorbing interest.

Messrs. Baker and Funaro, having themselves felt the need for a book such as this, have made a thorough study of the subject and have come up with a reference book on window design that is *complete*. Everything from the characteristics of different kinds of glass to the "geometry and mechanics of the sun" is included. Everything, furthermore, is carefully diagrammed and illustrated.

To be specific, there are two pages devoted to the basic types of opening sash; 10 to hardware, accessories and sun shades; 14 to stock windows; six to installation details. All of this is information which the architect will find extremely handy to have at his fingertips. And of equal value to him will be the large section titled "63 Windows in Use," which gives photos and construction details of windows in various types of building, including a hermetically sealed office building.

ART AND AMERICA

Made in America: The Arts in Modern Civilization. By John A. Kouwenhoven. With an introduction by Mark Van Doren. Doubleday & Co. (14 W. 49th St., New York 20, N. Y.), 1948. 6 by 8 ⅝ in. xv + 303 pp., illus. $5.00.

"From the point of view of those who have been trained in the cultivated tradition," writes Mr. Kouwenhoven, "the emergence of a civilization from popular roots has been a phenomenon of dubious merit." This is what the author means by the conflict of the vernacular or machine design and the cultivated tradition of European influence.

The vernacular, indicating one phase of American civilization, is that from which has evolved the *natural* in American culture. While men of Upjohn's caliber digested the foreign tradition, some of their contemporaries were constructing roads, bridges, canals. While men put Corinthian decoration on steam turbines, others, the decorative subordinated to purpose, invented portable riveting machines and unconsciously developed another kind of art. It was a battle between the esthetic and the practical, there was plenty of "ginger bread," but there was also the invention of the "balloon" structure, and the mixing of lime, sand and stone for building in woodless areas.

Throughout the book in chapters entitled "Space and Chance," "Stone, Steel and Jazz," etc., the author forcefully conveys the spirit of "natural integrity." Architecture, engineering, manufacturing, model-T-ism, as well as art, literature — all are included in this comprehensive analysis of Americana. Says Mark Van Doren in his introduction: "His broadest view takes in all Western civilization since the day when democracy and machinery got married and set up their modern house . . ."

PRIMER ON ARCHITECTURE

An Introduction to Architectural Design. By Donald A. Fletcher. Donald A. Fletcher (Box 1027, Grand Central Station P.O., New York, N. Y.), 1947. 6½ by 9¼ in. 212 pp., illus. $7.50.

Integration of diverse factors is an art and a necessity to be learned in the achievement of good design. It is upon this principle that Architect Fletcher presents his primer for beginning students in architecture with the purpose of anteceding and complementing books on design already in circulation. The basis of the book, acknowledgedly, is the method of work followed at the École des Beaux-Arts in Paris.

A systemmatic project, the book is divided into three sections: Factors in Design — Eleven Exercises in Architecture; A Method of Work; and Notes on Related Topics.

PUBLICATIONS
ON RECREATIONAL BUILDINGS

Available from the National Recreation Assn., 315 Fourth Ave., New York 10.

Planning a Community Recreation Building. Principles and features.........$0.25

Recreation Areas—Their Design and Equipment. A guide to the planning of playgrounds, playfields and athletic fields; 169 illustrations.........$6.00

Selected Bibliography on the Design and Equipment of Recreation Areas and Structures (MP 161)........$0.20

Standards for Neighborhood Recreation Areas and Facilities...........$0.15

Standards for Municipal Recreation Areas. Includes description of the various types of municipal areas............$0.50

At the beginning of the exercise section the requisites for the proposed sketches are specified. Mr. Fletcher emphasizes in no uncertain terms the need for the new student to discover how to create a unified design, and at the same time to pursue diligently his own inspiration. The exercises progress from gazebo to pump house, portico, club house, church façade, museum and library, hall of the fine arts, minor building for a summer music festival, church group, boat house, and railroad station. The design of each has its own particular place in the development of the embryo architect.

In the second section Mr. Fletcher outlines a method of work starting with the preliminary analysis of the problem and carrying through to the design stage, presents a group of preliminary exercises, and winds up with five pages of "hints for the drafting room."

The final section is given over to an assortment of short topics, alphabetically arranged, including arranging a sheet, drawing and rendering, lettering, scales and styles.

FACILITIES FOR CAMPING

Camp Site Development. By Julian Harris Salomon. Girl Scouts of the United States of America (155 E. 44th St., New York 17, N. Y.), 1948. 8 by 10½ in. vi + 106 pp., illus. $4.00.

Although written specifically to serve as a guide for those planning Girl Scout camping facilities, this volume will be of interest to anyone planning similar facilities for any other organization, as it contains much basic information on camp needs.

Mr. Salomon, who is Camp Consultant to the Girl Scouts, and the author of several other books on camp planning, stresses particularly the need for a topographical map of the site as the basis for an overall master plan. "Without such a plan," he warns, "it might happen, for example, that an infirmary is built in a place that ultimately proves to be the only place available for a campfire circle or a play field."

Subjects covered by Mr. Salomon inincludes water supply, roads and electricity; sewage and waste disposal; the administration area (camp office, infirmary, shower house, shop, etc.); dining lodge and kitchen; campers' living quarters; and aquatic facilities and equipment. Each section offers plans, diagrams and sketches as well as general information and construction details. The facilities illustrated are of all sizes, some of them fairly primitive, others quite civilized; they are suitable to all sections of the country, and they include

(*Continued on page 30*)

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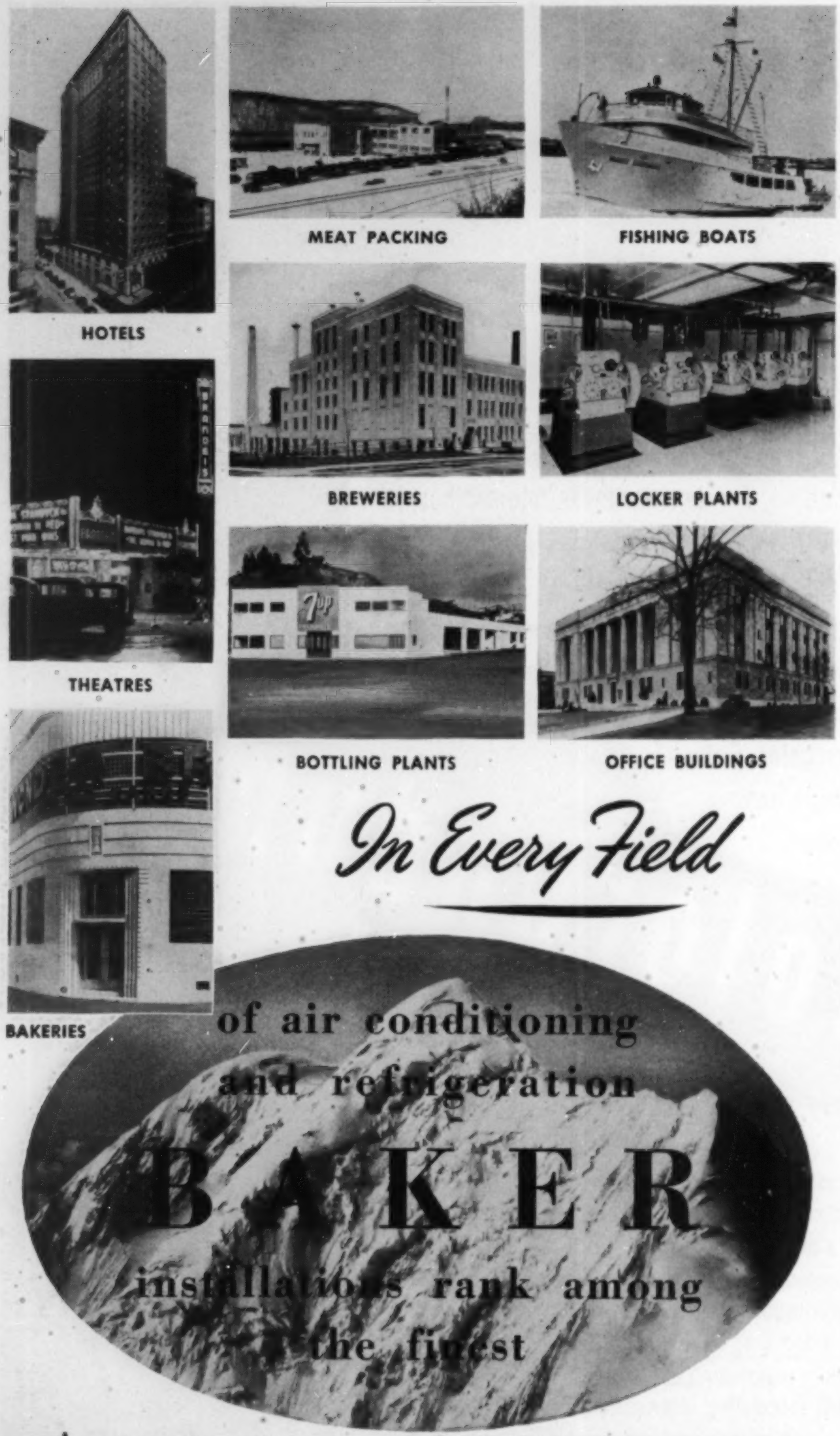

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REQUIRED READING

(*Continued from page 28*)

every kind of facility required. In the section dealing with campers' living quarters, for instance, the accommodations range from the simple Adirondack lean-to and the canvas tent to the deluxe unit lodge, and include plans for kitchen and wash shelters.

COMMUNITY CENTERS

Community Centers as Living War Memorials: A Selected Bibliography with Interpretive Comments. Compiled by James Dahir. Russell Sage Foundation (130 E. 22nd St., New York, N. Y.), 1946. 6 by 9 in. 63 pp. 50 cents.

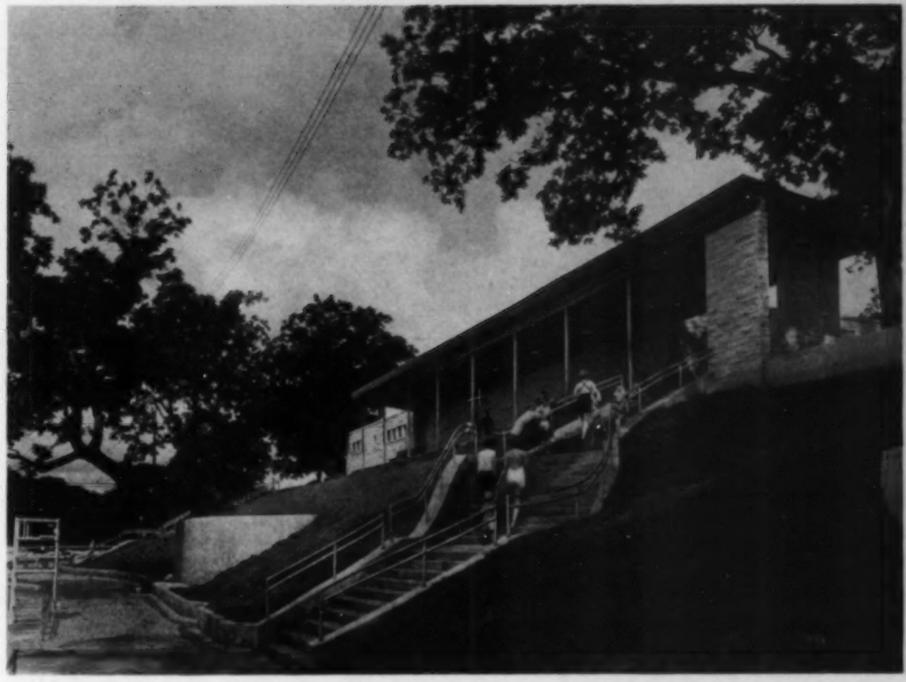
Despite the fact that this is not a new book (it was published just two years ago), it is a valuable source of information for the architect concerned with recreational buildings — the subject of the RECORD's Building Types Study this month (see pp. 110–129). It is a bibliography *par excellence* on the community building, not only listing a wide variety of books, pamphlets, articles and studies on the subject, but grouping them conveniently and giving a brief comment on the content and value of each. Thus the architect who is particularly interested in the various types of community centers may turn to Chapter III, where he will find the types broken down into general and miscellaneous, centers in housing developments, and centers in school buildings. Each section has general comments by Mr. Dahir and its own list of references, each discussed in turn.

Since the main theme of Mr. Dahir's compilation is the community center as a war memorial — a building which need not necessarily be limited to recreational purposes, his list includes references on the large, clinic-equipped center as well as the small village club.

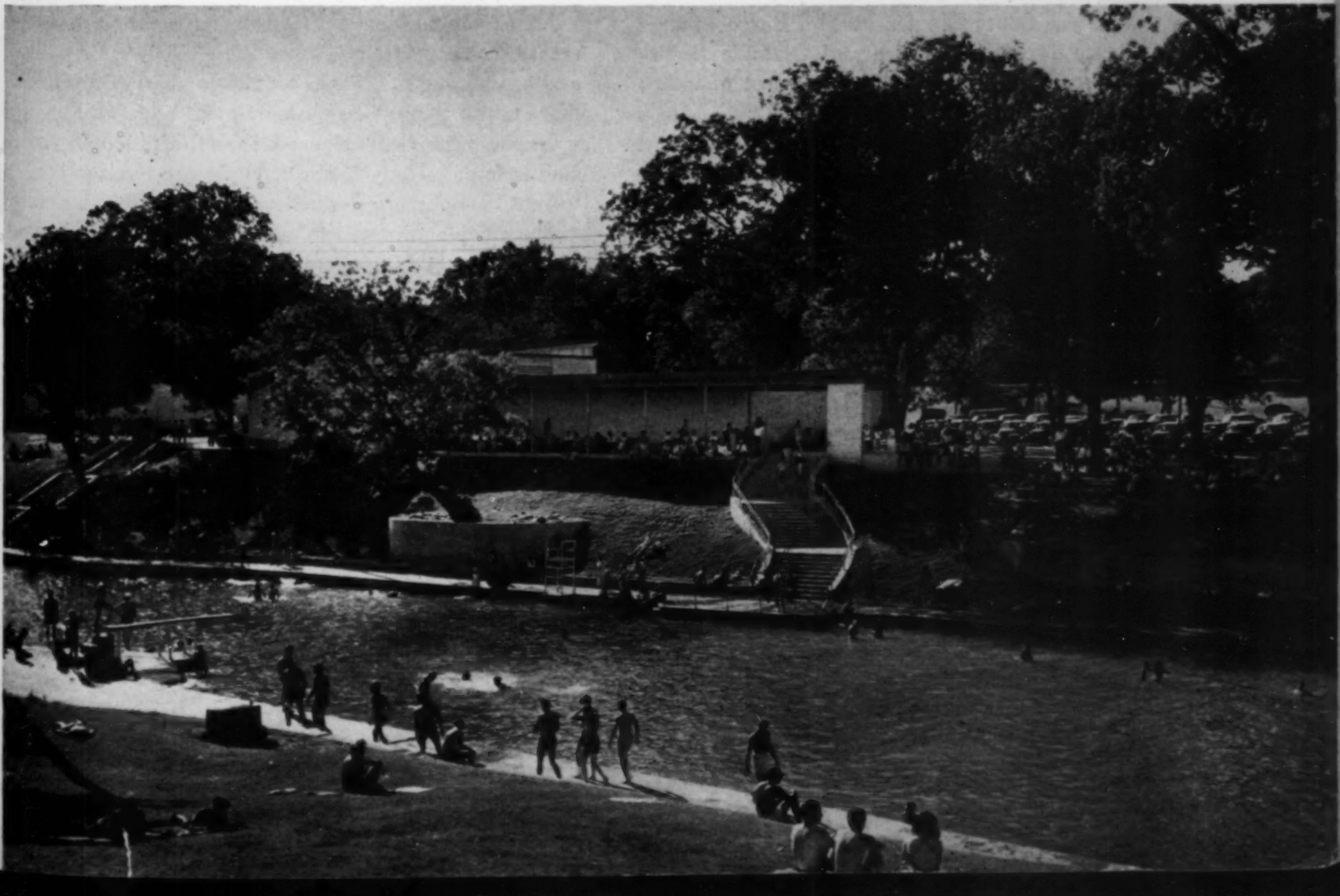
ART IN THE MUSEUM

Painting and Sculpture in the Museum of Modern Art. Edited by Alfred Barr, Jr. The Museum of Modern Art (11 W. 53rd St., New York 19, N. Y.), 1948. 7¾ by 10¼ in. 327 pp., illus. $5.00.

Once again the Museum of Modern Art has compiled a catalog of paintings and sculpture from the collection in its galleries. Arranged in 20 sections with an introduction by Alfred Barr, Jr., director of the Museum Collections, the volume contains interpretative comment as well as 380 diversified plates illustrating modern American and European primitives, Expressionism, Cubism, the Romantic tradition in the U. S., free form, traditional forms, folk sculpture, etc. Thirty nationalities are represented among the artists.



The architects would have liked to give a more decisive S-curve to this stair leading from bath house to pool; were prevented by cost considerations. Note care with which retaining wall has been built around existing tree. Lower view gives good impression of glorified "old swimming hole" in use. Even the architects who promoted this concept have been compelled to watch their step. Some citizen telephones the minute anybody has touched a bush or a tree, so completely has this civilized version been sold to the people of Austin



Spence Air Photos

BEVERLY HILLS
1929

A brief illustrated summary of the comprehensive study and report of the firm of Harland Bartholomew and Associates, City Planners, shows the recommended solutions to the twin problems of —

TRAFFIC AND PARKING IN BEVERLY HILLS

Almost completely surrounded by the sprawling metropolis of Los Angeles is Beverly Hills, home of many glamorous movie stars. It has the same unglamorous problems which beset nearly all the other American cities — traffic and parking. But as a segment of a larger community, Beverly Hills is confronted by these twin headaches in a greater degree than the average independent city of 30,000 persons.

Four major highways from the Los Angeles business district and the Hollywood area pass through Beverly Hills toward the Santa Monica-Malibu Beach area — Sunset, Santa Monica, Wilshire and Olympic Boulevards. Each carries very heavy traffic, most of it not destined for Beverly Hills.

The city was originally residential. Its population of 674 in 1920 had grown to about 28,700 by 1947. Though a community of fine single-family residences, Beverly Hills is strategically located for a major shopping center, its "Triangle." Retail sales increased from $6,000,000 to $100,000,000 in the past 14 years. The retail stores are of a "quality" character, dependent almost exclusively upon automobile trade. There is 1 car for every 2 persons (the national ratio, 1 to 5).

Major Streets. Beverly Hills is primarily interested in maintaining the high character and beauty of the residential areas. The large business center here causes a certain amount of conflict as it attracts traffic and parking space has been inadequate.

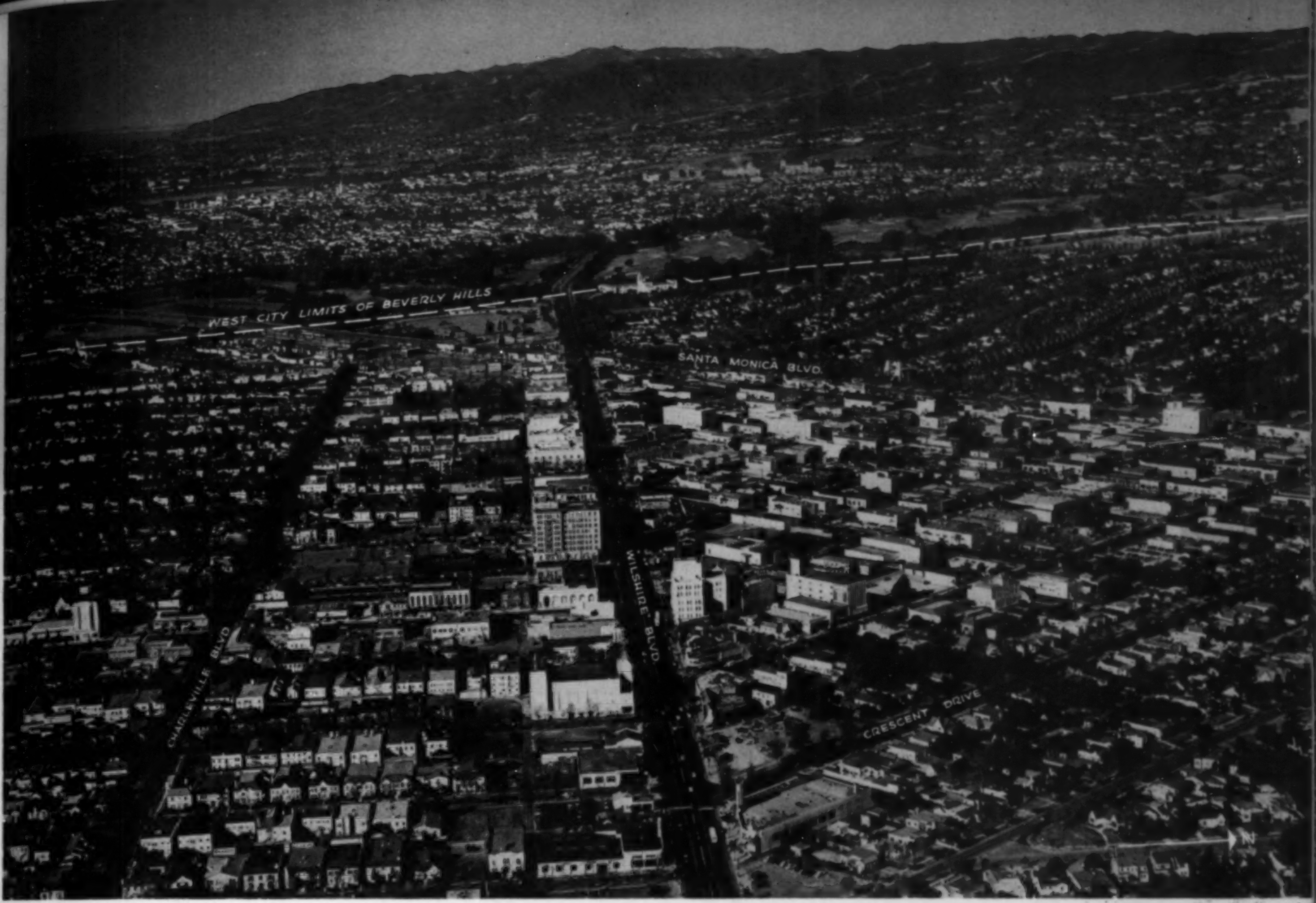
The street problem is two-fold: (1) through traffic must be accommodated; (2) the residential areas must be protected from heavy traffic. The solution is to choose and suitably improve a few strategic thoroughfares for the heavy, fast, through traffic. A new channel to carry east-west traffic will be necessary. "Minor" streets must be planned to minimize through traffic movement by using traffic control devices, lights, signs, etc.

As a basis for the planning of an adequate and properly integrated street system for the future, automatic recording traffic counters were used to determine both average and peak loads and times. The street system must be able to accommodate satisfactorily the peak hour movement of vehicles — present and future.

In Beverly Hills, volumes on the major traffic arteries build up to a peak at about 8 a.m., and until 4 p.m. the volumes remain fairly uniform. After 4 p.m. a sharp increase occurs during the evening rush hours. Between 4 and 6 p.m., the streets are required to carry 30 per cent more traffic than at any other time.

In the Triangle Business District, a different condition is found. Here, traffic volumes are relatively light before 10 a.m., after which there is a rather constant traffic movement until 6 p.m. with only a slight increase during the evening rush hours. The same roadway capacity is needed all day within the Triangle Business District. The preponderant traffic movement in Beverly Hills is on the through east-west highways. (See peak flow diagram, page 98.)

The major street system for the Beverly Hills of the future was designed on the basis of a 100 per cent increase in peak hour traffic. Major thoroughfares will provide adequate and convenient through arteries. Revisions recommended include the traffic control system of lights and signs, prohibition of curb parking during rush hours, channelization of several important intersections to reduce congestion due to turning movements, elimination of left turns at a number of intersections, and installation of 4-ft. medial strips on Wilshire and Olympic Boulevards.



BEVERLY HILLS—1948

A new major street is recommended in the western portion of the city to facilitate the movement of north-south traffic. The proposed Santa Monica Freeway will become the dominant east-west artery. Most streets can continue to be minor residential streets to be used solely for access to the property they serve.

Freeways: *Santa Monica Freeway.* As the major solution to the problem of traffic movement in the Los Angeles metropolitan area, a system of freeways has been proposed. Studies and plans are now being made by the State Highway Department. These freeways would be limited access highways, all crossings being eliminated by separating the grades. Access would be by ramps with the places of access limited. Such streets can carry large volumes of fast-moving traffic with maximum safety. Rights-of-way 200 to 300 ft. in width are needed in most cases. Such highways should provide three lanes in each direction, with opposing traffic separated by medial strips.

A freeway through Beverly Hills is proposed by the State in the general vicinity of Santa Monica Boulevard. The necessity for this freeway is conclusively proven by studies of traffic flow. It would, of course, be desirable to locate this freeway outside of rather than within Beverly Hills. It cannot go north of Beverly Hills because of the topography. Other possible locations were carefully considered and analyzed but were found difficult or undesirable.

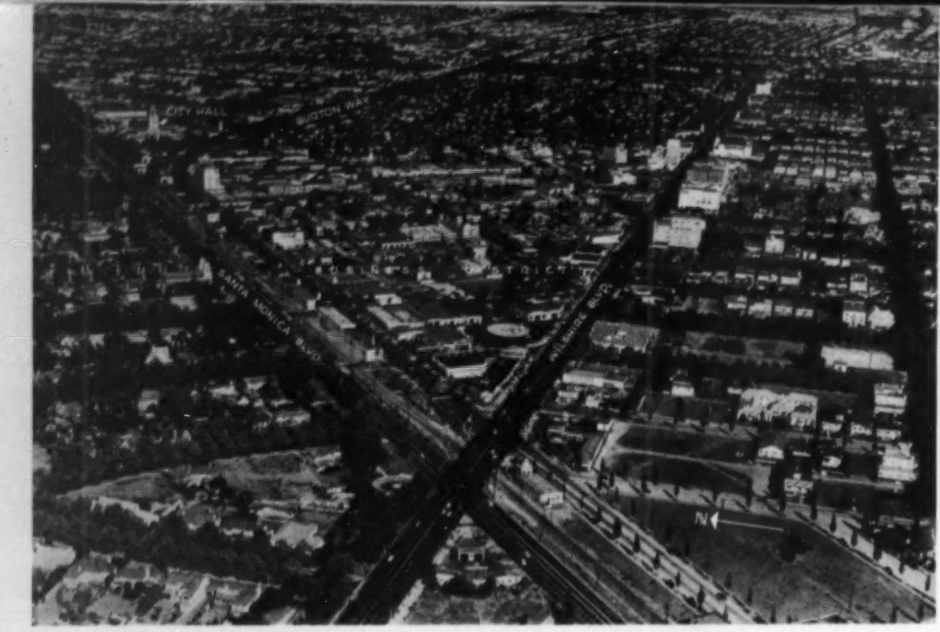
A location along Santa Monica is undoubtedly the most logical and desirable. It will directly serve both the industrial and the business areas and disturb the minimum amount of existing development, particularly residential. It will serve as a buffer between residential and the more intensive uses.

The Bartholomew report contains two alternate preliminary designs for this freeway, one to accommodate rapid transit, one for buses. Under these plans, the freeway would be depressed, with wide landscaped areas along each side. The possibility of covering the highway through the Triangle was considered, but the expense could not be economically justified. Furthermore, the possibilities of providing underground parking immediately south of the freeway within the business district would be more advantageous.

A convenient transit station is proposed at Canon Drive with adequate parking spaces. Only a comparatively few north and south streets are recommended to be carried across the proposed freeway which thus would be an effective barrier to traffic movements through the residential districts north and south.

A minimum number of traffic interchanges are proposed within Beverly Hills, the most difficult and expensive being at Wilshire Boulevard. This is necessary to accommodate the many turning movements.

A service drive would connect the residential streets north of the freeway. South of the freeway, a wide major



Spence Air Photo

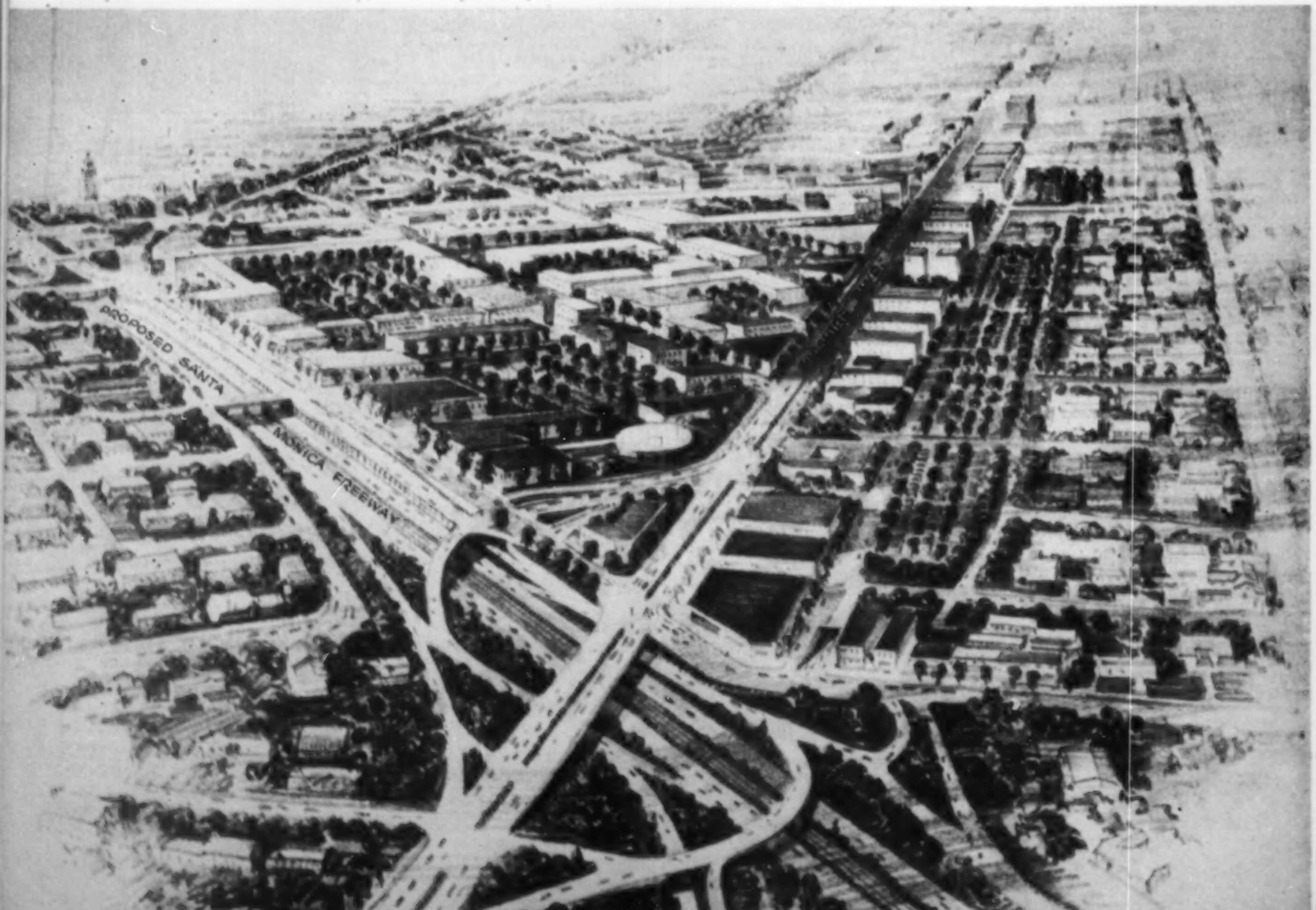
Left: the present business district, the Beverly Hills Triangle. Below: the same district as it would appear with the proposed freeway and traffic arteries. Opposite page: the new plan for the Triangle indicating traffic routes and parking areas

street is proposed as a distributor street serving the business district and the industrial area. Rail service to the industrial area could be continued under either plan.

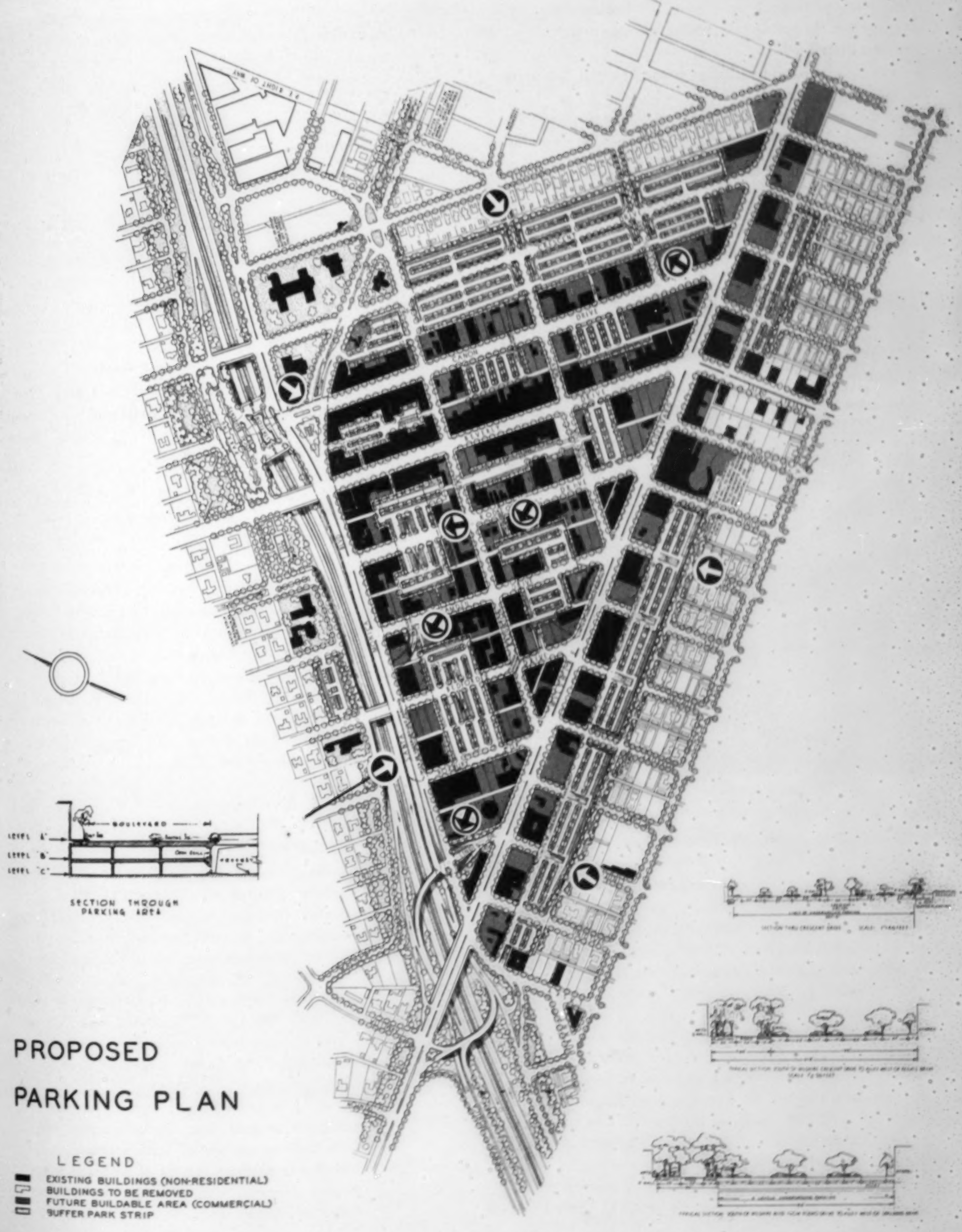
The proposed freeway will afford the only satisfactory means of accommodating the large volume of east-west traffic that will be passing through the city. The freeway should accommodate about 4500 vehicular movements in each direction during the peak hour, relieving other streets. The rapid transit facilities of the freeway will assist Beverly Hills as well as the entire metropolitan area.

Parking. Beverly Hills is not alone a unique residential area, it possesses a business district of unusual distinction, stores and shops of unusually high quality serving the entire western half of the Los Angeles metropolitan area and beyond. The business of these specialty stores depends almost exclusively upon automobile trade. Adequate parking facilities are thus extremely important if this area is to maintain its present character.

The thorough parking survey, including field checks and questionnaire surveys, was conducted to determine



ARROWS AND DASH LINES INDICATE UNDERGROUND PARKING AREAS


P. E. RIGHT OF WAY
DRIVE
BOULEVARD
LEVEL "A"
LEVEL "B"
LEVEL "C"
PARKING
SECTION THRU CRESCENT DRIVE

SECTION THROUGH PARKING AREA

PROPOSED PARKING PLAN

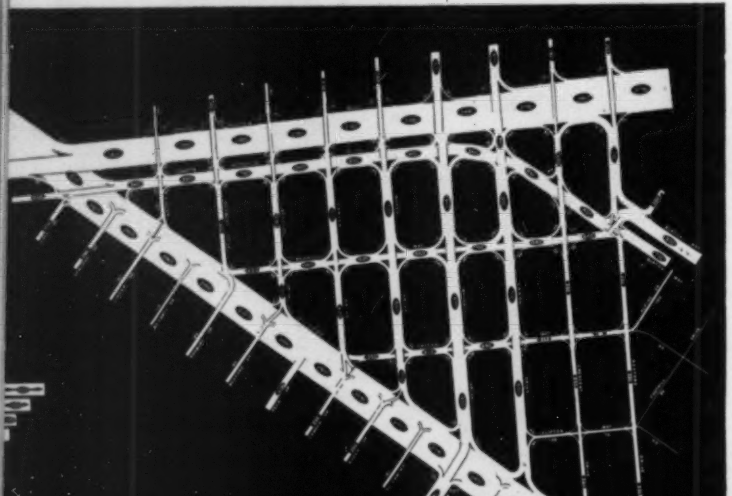
LEGEND

- ■ EXISTING BUILDINGS (NON-RESIDENTIAL)
- ▭ BUILDINGS TO BE REMOVED
- ▨ FUTURE BUILDABLE AREA (COMMERCIAL)
- ▭ BUFFER PARK STRIP

the characteristics of the use of curb and off-street parking facilities as well as the attitudes and preferences of customers and employees. Information was secured both by observation and by interviews. Questionnaires used were of three types — one for business establishments, one for employees, and a questionnaire card for general distribution.

The results of the parking survey brought out several interesting facts:

50 per cent of space-time is used by employees. Of the estimated 27,493 cars parking in the Triangle daily, 3214 cars, or slightly under 12 per cent are those of employees. This 12 per cent, however, occupies approximately 50 per cent of the space-time used, or 30 per cent of the available space-time. Employees now use space that should be devoted almost exclusively to customer parking.



71 per cent of parkers use space in the "inner" Triangle. Of the 27,493 cars parking daily, approximately 19,500, or 71 per cent, park in the portion of the Triangle between Wilshire and Santa Monica Boulevards.

55 per cent of short-time parkers are shoppers. Business calls account for 28.5 per cent, medical-dental calls, 14.5 per cent.

The parking survey disclosed considerable variation in parking space requirements for different business uses. Analysis of parking spaces required for 1000 sq. ft. of floor area showed an average need for one parking space for each 248 sq. ft. of floor area. The commonly accepted standard for parking space is that one automobile required 250 sq. ft.

The significant facts with respect to *present* parking space as disclosed by the survey are: (1) there is improper use of present parking space (i.e., close-in areas are used predominantly by employees to the exclusion of customer use); (2) there is improper distribution of parking space (evidenced by a growing shortage of such space on the most intensively developed streets); (3) at least 1200 curb parking spaces on residential streets have been forced into use because of insufficient available area within the business Triangle; (4) all parking space is privately owned and hence there is no assurance of its retention for parking purposes in the future.

The comprehensive parking plan proposed in the Bartholomew report has been designed to eliminate all business parking on the residential streets adjacent to the business district, provide a buffer strip of parks and park-like parking areas between the commercial development and the residential sections, provide adequate parking spaces suitably located within the business section and the buffer strips for both customers and employees to serve present and estimated future needs.

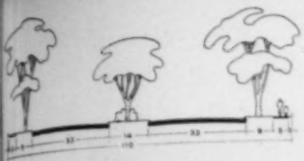
On the north of the Triangle, the proposed Santa Monica Freeway (which would be depressed and landscaped) will provide the needed buffer strip to separate commercial from residential sections. South of Wilshire, parking areas would be bordered by walls and a tree-shaded park strip to provide a definite separation between commercial and residential use.

Present and future parking requirements would be satisfied by the provision of the 13,650 parking spaces included in the plan; 1670 parking spaces would be at the curb and 11,980 spaces would be available in surface and underground facilities. No parking garages above the ground are proposed as studies of local parking habits indicated they would not be popular. It is contemplated that spaces at the curb and on the surface of the off-street facilities will be used for customer parking, while the lower level will be used for all-day parking.

An unusual feature of the parking plan is the subsurface parking structure underneath Santa Monica Boulevard and forming a part of the south boundary of the proposed Santa Monica Freeway. The vertical wall of the parking structure facing the freeway would be of grillwork construction to admit light and air to the parking floors and thus eliminate the necessity for mechanical ventilation of the structure.

Zoning. In order to maintain the integrity of the residential development, and to contain the business district within its present boundaries and under proper regulation, the Bartholomew report devotes attention to land use and zoning. A new zoning ordinance is presented. The ordinance also would regulate the intensity of commercial development by prescribing building height limits and by requiring provision of off-street parking space when new buildings are erected.

Above, left: graphic chart showing volume of traffic during peak hour. Opposite page: street plan showing sections of various streets (numbered) and alternate sections of proposed Santa Monica Freeway. Also existing and ultimate future traffic flow



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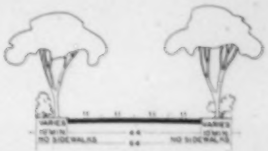
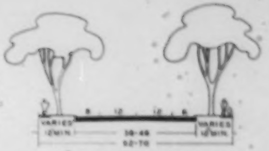

VARIES 10' MIN
NO SIDEWALKS
VARIES 10' MIN
NO SIDEWALKS

9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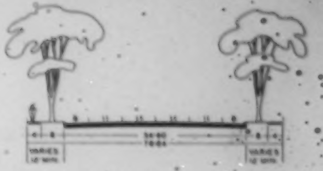
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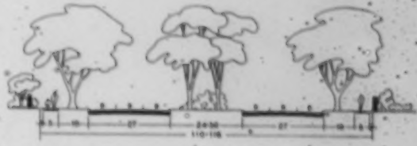

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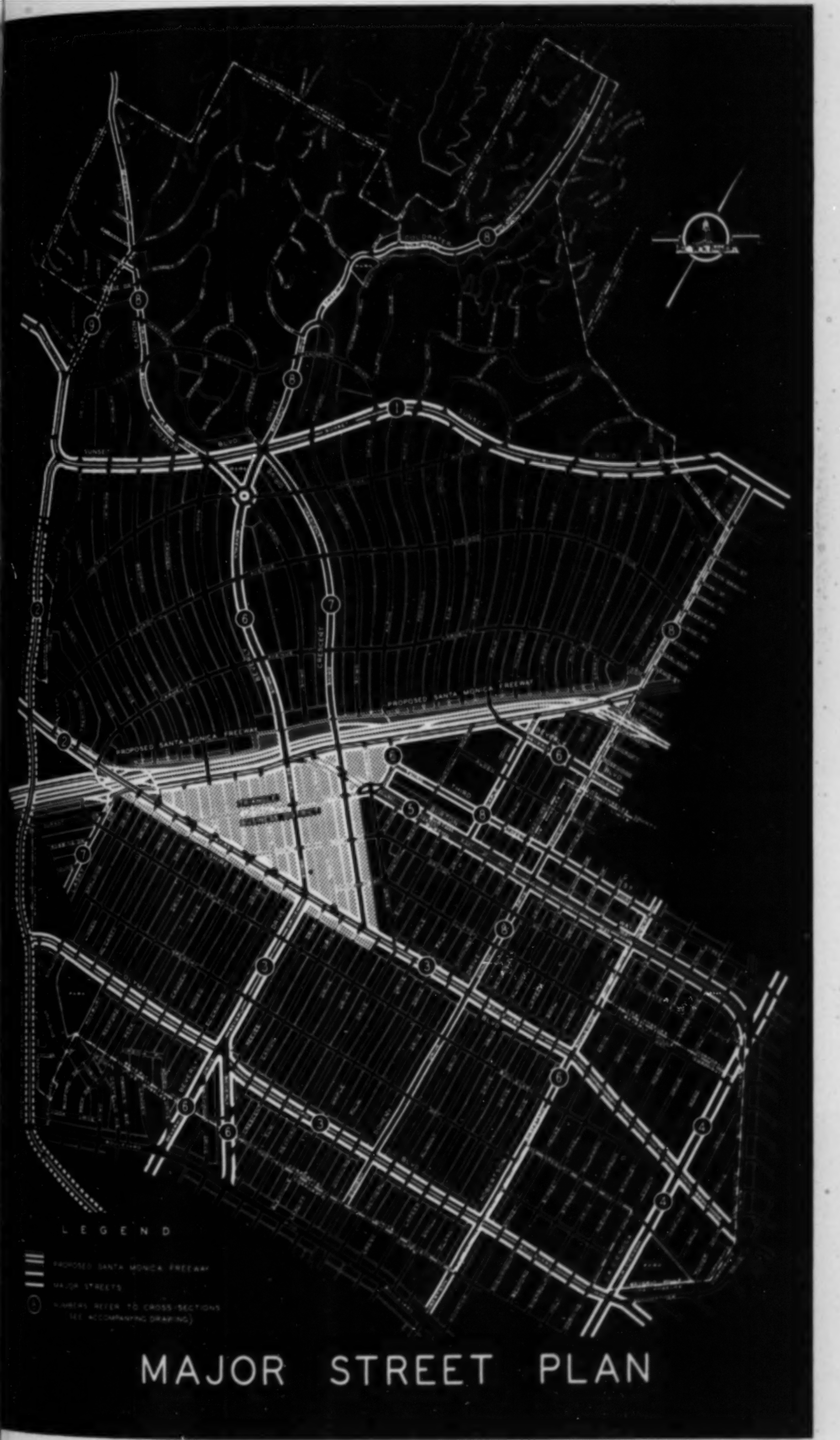
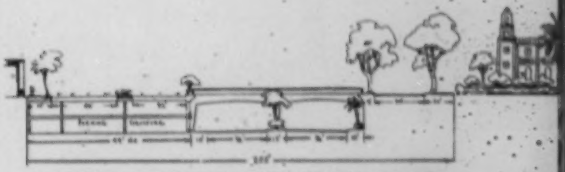
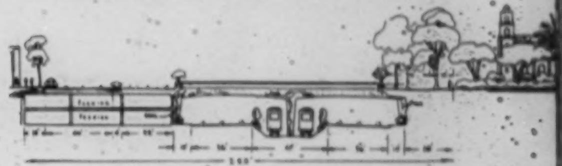
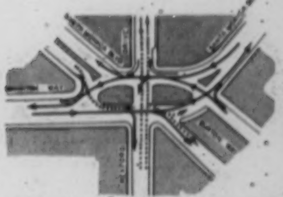

SUNSET BLVD
PROPOSED SANTA MONICA FREEWAY
LEGEND
PROPOSED SANTA MONICA FREEWAY
MAJOR STREETS
NUMBERS REFER TO CROSS-SECTIONS (SEE ACCOMPANYING DRAWING)

MAJOR STREET PLAN

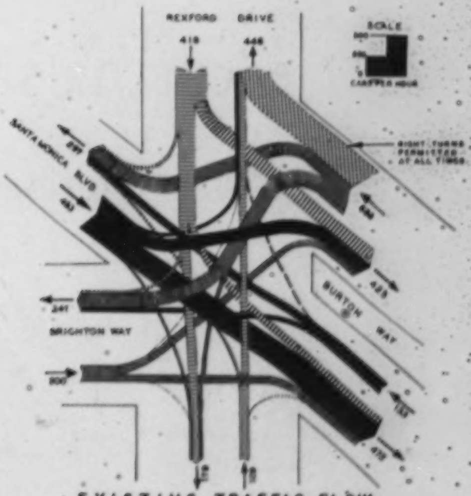


ALTERNATE SECTIONS - SANTA MONICA FREEWAY



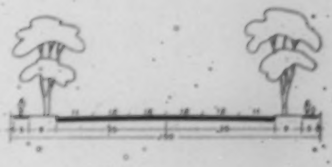


ULTIMATE FUTURE TRAFFIC FLOW
TWO PHASE OPERATION
RIGHT TURN AT ALL TIMES


REXFORD DRIVE
418
446
SCALE
CARS PER HOUR
SANTA MONICA BLVD
RIGHT TURNS PERMITTED AT ALL TIMES
BURTON WAY
425
BRIGHTON WAY
241

EXISTING TRAFFIC FLOW
SANTA MONICA — REXFORD — BURTON — BRIGHTON
THREE PHASE OPERATION
PEAK HOUR

4



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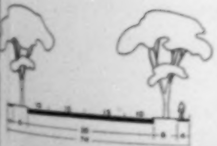
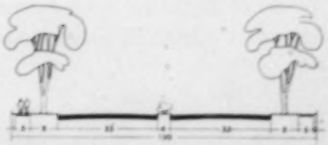
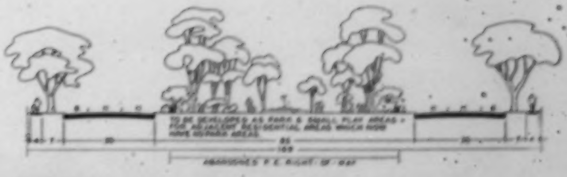
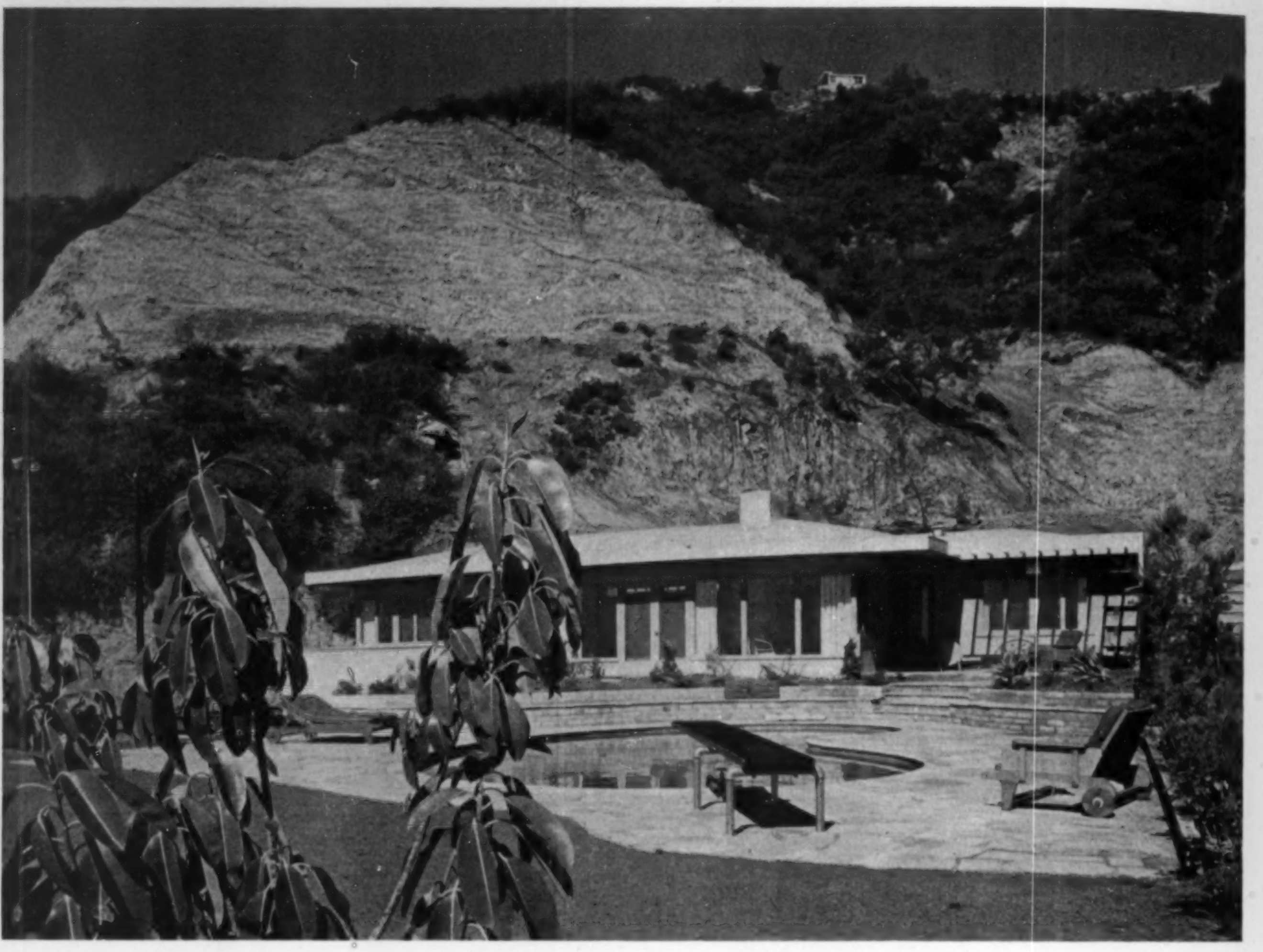





TO BE DEVELOPED AS PARK & SMALL PLAY AREAS FOR ADJACENT RESIDENTIAL AREAS WHICH NOW HAVE NO PARK AREAS
ABANDONED P.E. RIGHT OF WAY



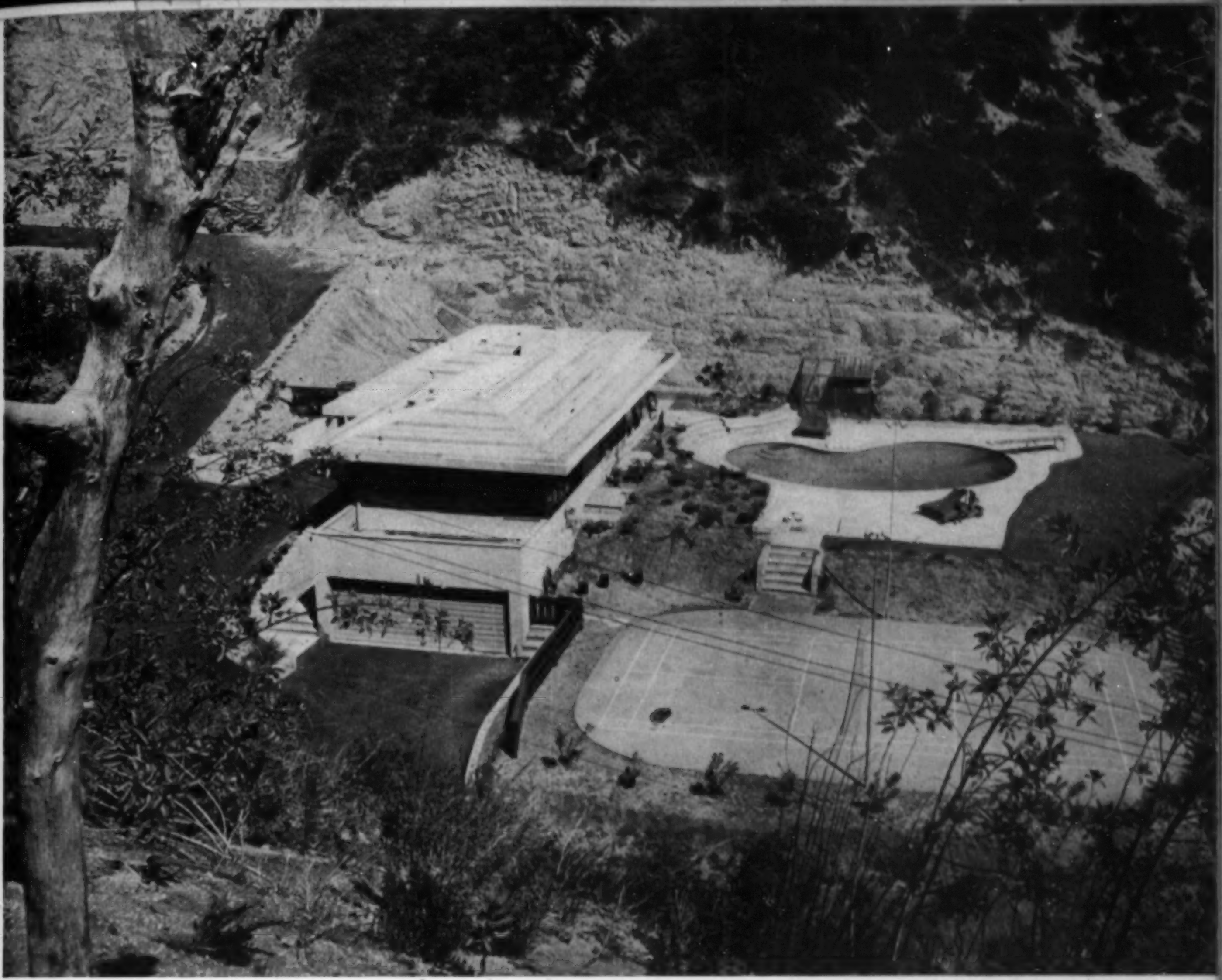
Julius Shulman Photos

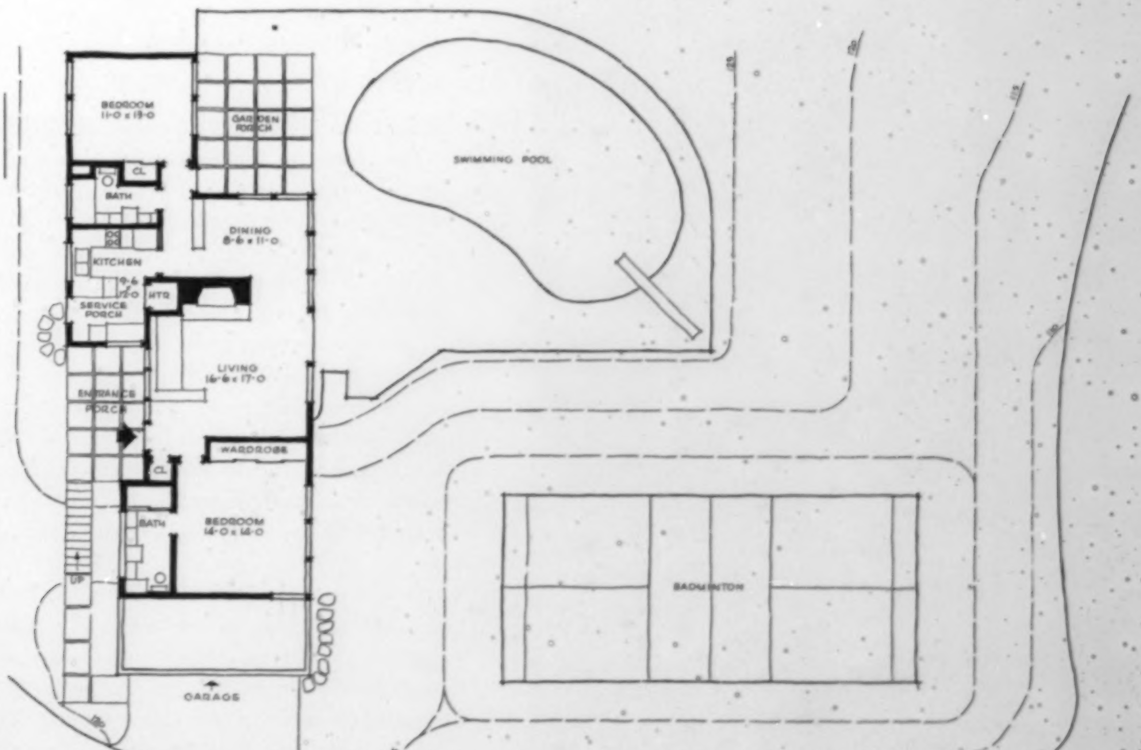
BACHELOR'S RESIDENCE IN THE HOLLYWOOD HILLS

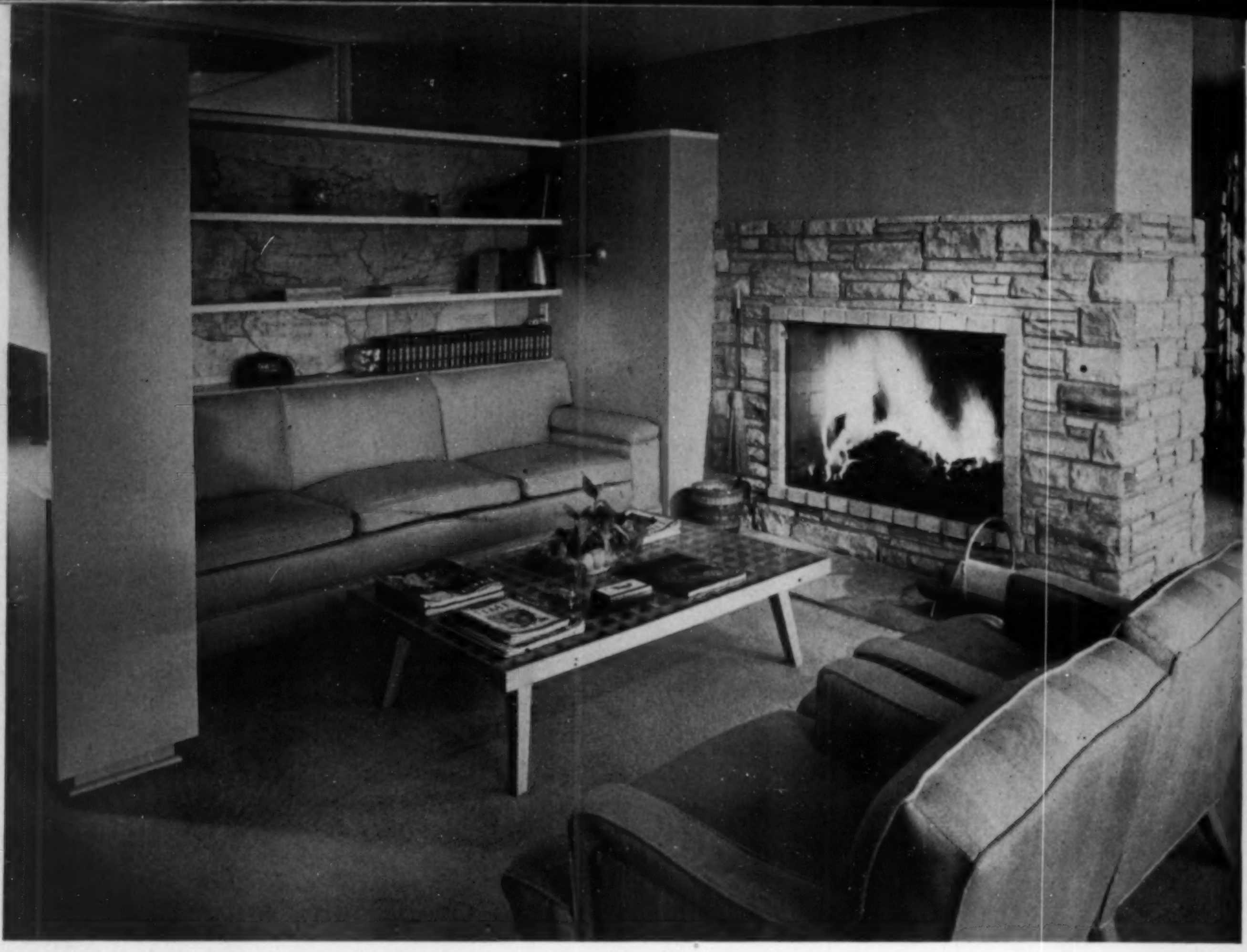
Residence of Mr. Richard A. Hartje, Los Angeles

Rolf Sklarek, Architect

MAGNIFICENTLY situated high in the Hollywood Hills, overlooking all of Los Angeles and extending its view to the ocean beyond, this unusual small house was planned both around its setting and around its bachelor owner's liking for swimming, badminton and informal weekend entertaining. Every room in it, therefore, is oriented toward the view and the broad terrace accommodating the swimming pool and badminton court, and the walls on that side of the house are almost wholly of glass. Privacy was no problem — the owner bought the entire valley and hilltop and installed a private road to serve both his own home and those portions of the property which he intends to sell. The house is set about




BEDROOM
11-0 x 13-0
GARDEN PORCH
CL
BATH
DINING
8-6 x 11-0
KITCHEN
9-6 x 12-0
HTR
SERVICE PORCH
LIVING
16-6 x 17-0
ENTRANCE PORCH
WARDROBE
CL
BATH
BEDROOM
14-0 x 14-0
UP
GARAGE
SWIMMING POOL
BADMINTON
0
5
10
15
20



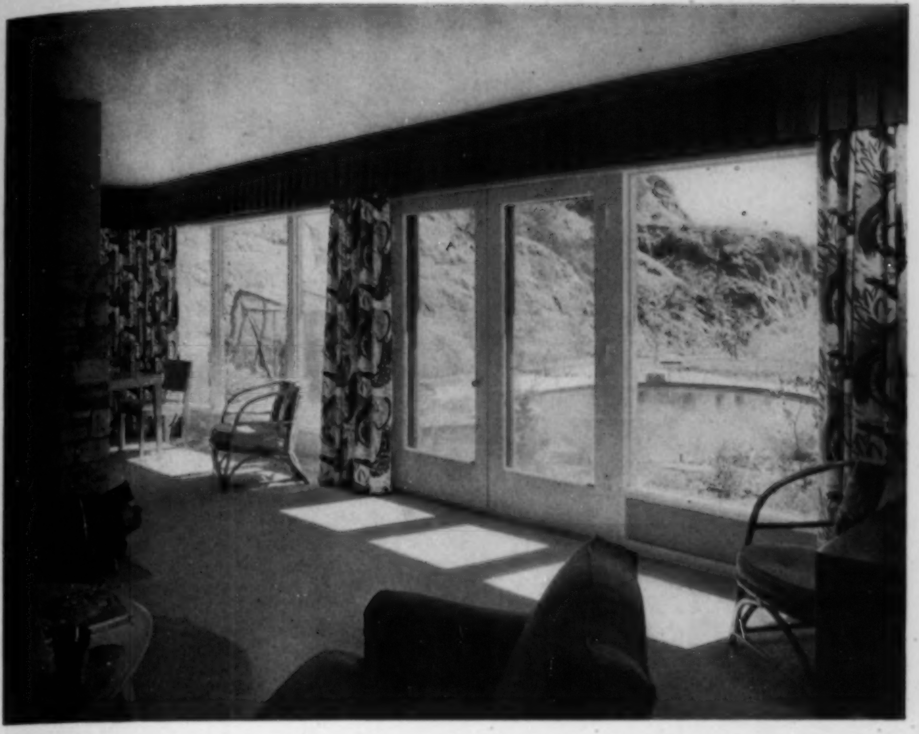
Left: the main entrance porch, looking toward the service porch. To increase the apparent size of the house (only 1200 sq. ft. in area), two pergolas were added, one here, the other outside the guest bedroom

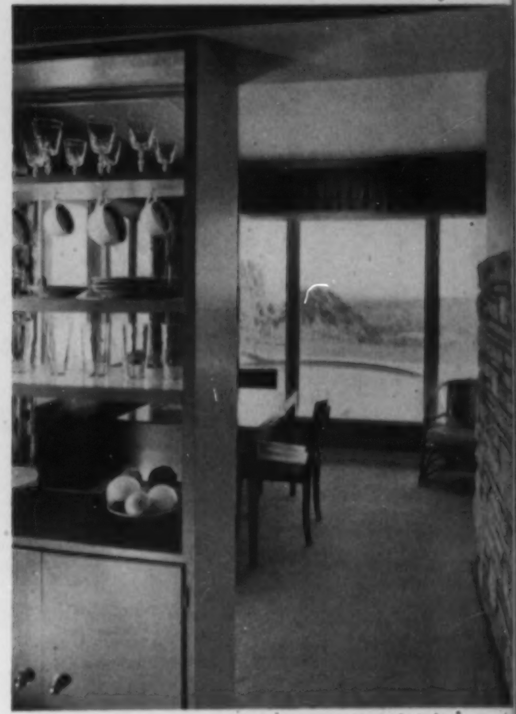
15 ft. above the level of the road, and turns its back on it.

The plan of the house itself reveals a number of thoughtfully worked-out details. Built-in cabinets shield the living room from the entry and form a secluded nook for the couch. The fireplace serves as a dividing wall between the living and dining areas. The master bedroom, which has its own bath, is accessible directly from the main entrance; the guest room is at the opposite end of the house, with its bath so placed as to make it a convenient dressing room and shower for the pool. The forced air heating unit is installed in a closet behind the fireplace, opening to the kitchen. The garage, which topography demanded be located on a lower level, is connected with the main entrance by concrete and flagstone steps.

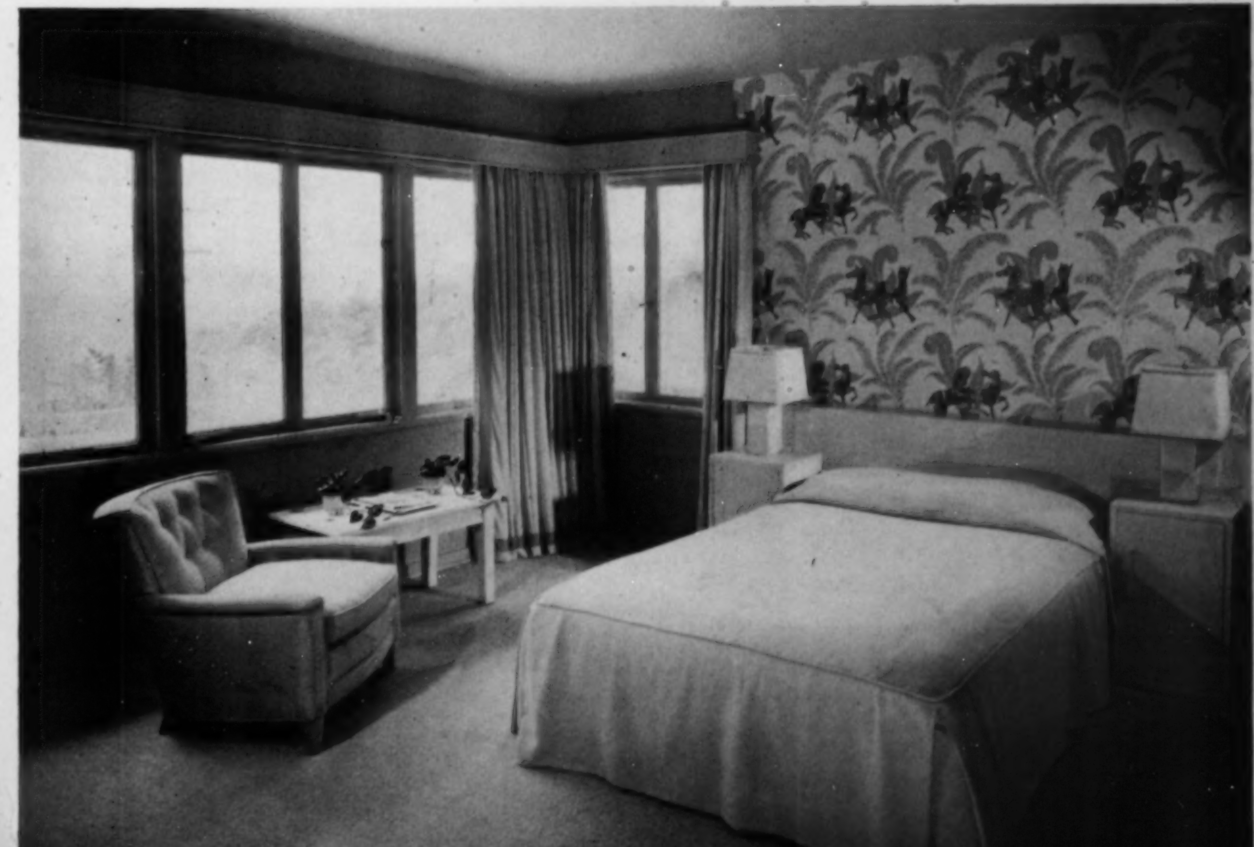
Construction is of wood stud and plaster, with a composition roof laid in the Bermuda manner over wood strips installed parallel to the ridge. Except for the small portion over the garage, the house is built on concrete slab directly on the ground. Exterior is white stucco with gray trim; the roof is white, reflecting the sun's heat and emphasizing the house's simplicity.

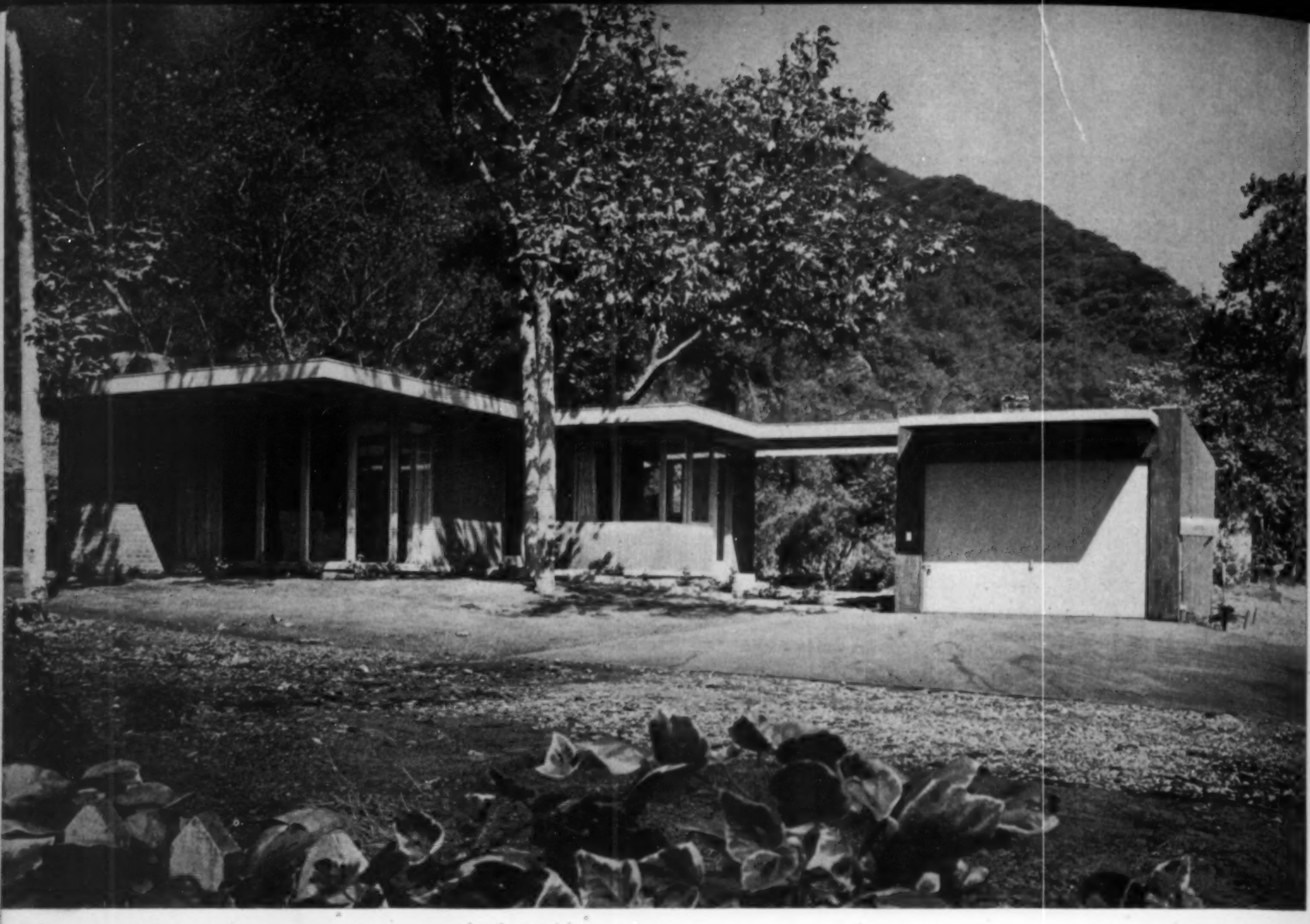
Julius Shulman Photos





Colors were kept quiet for the sake of the view, but walls away from the view are occasionally accented by maps (opposite page) and wallpaper such as in master bedroom (below). Wood tacking strip for carpet is laid directly in concrete slab of foundation

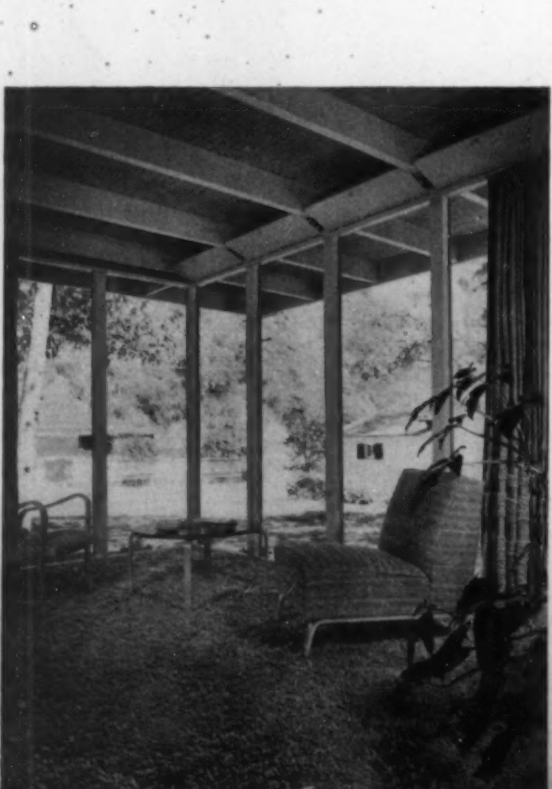




Julius Shulman Photos

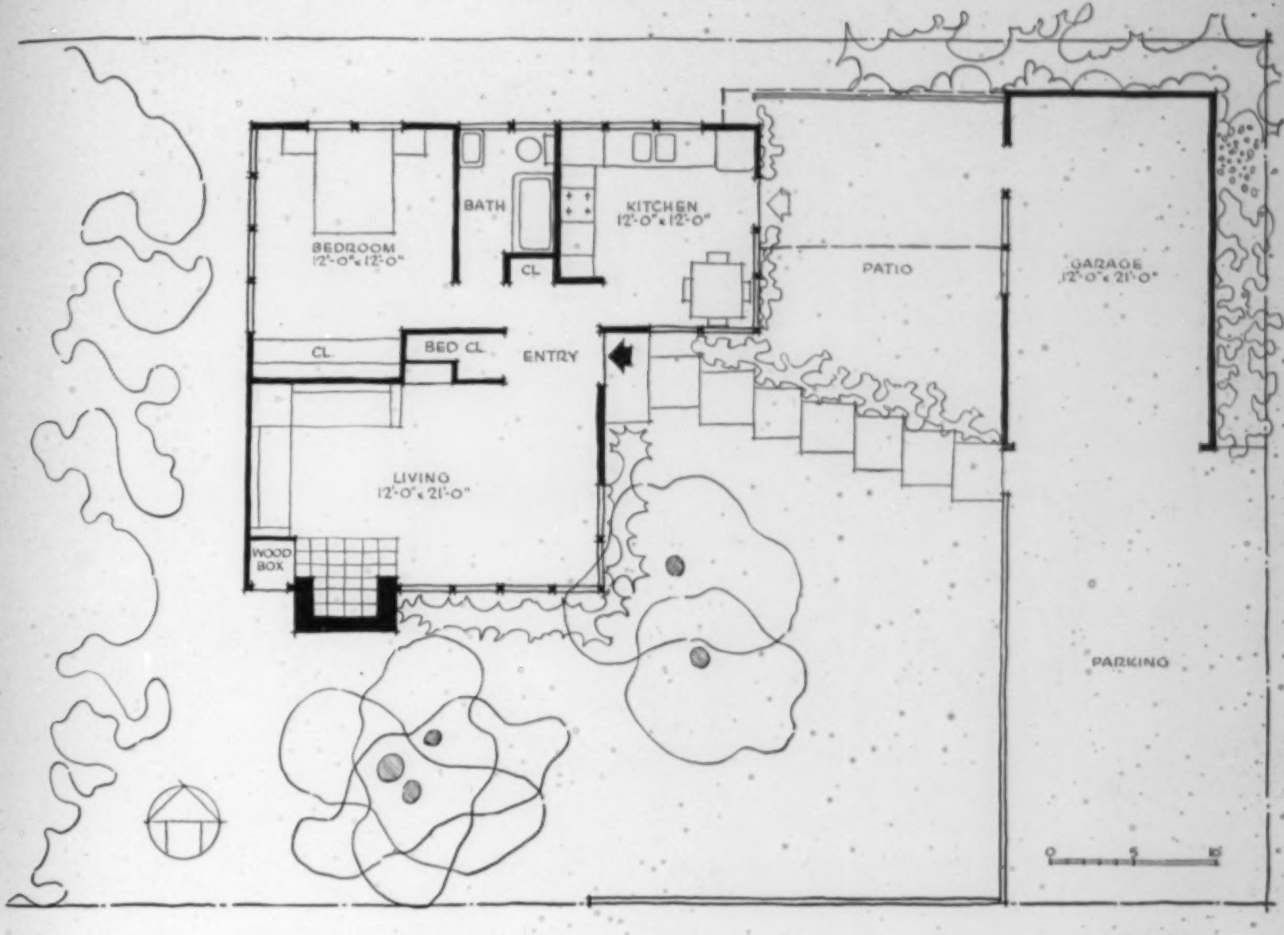
COMPACT HOUSE IN CALIFORNIA CANYON

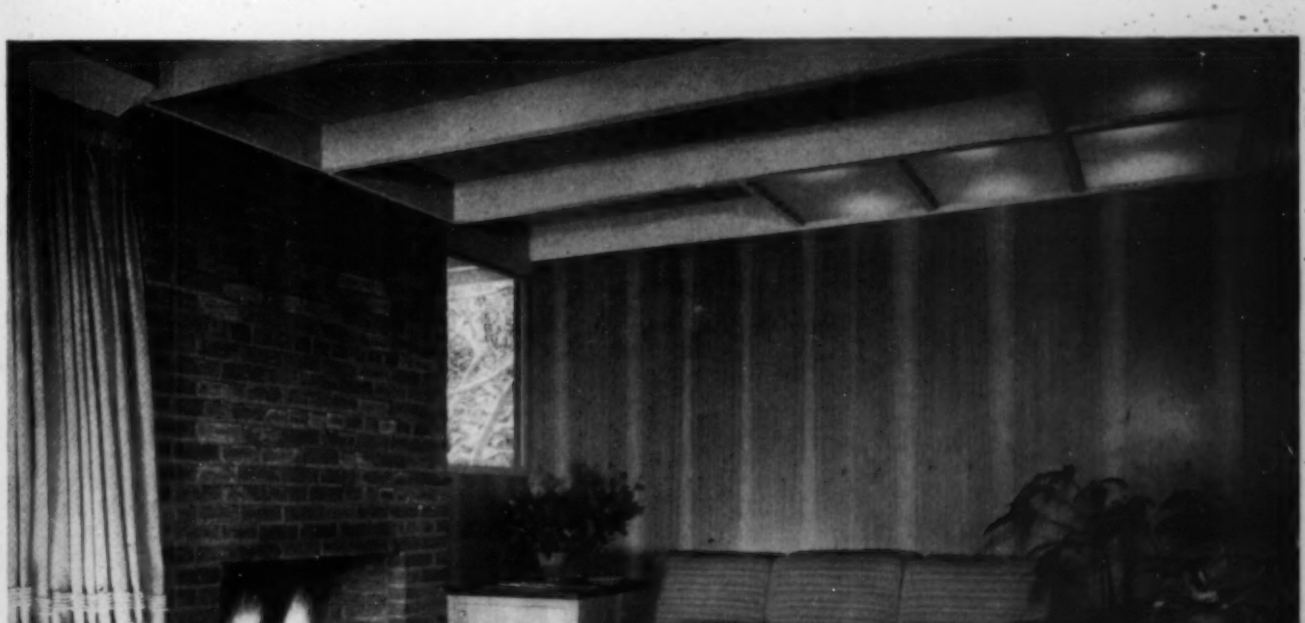
Rodney Walker, Architect

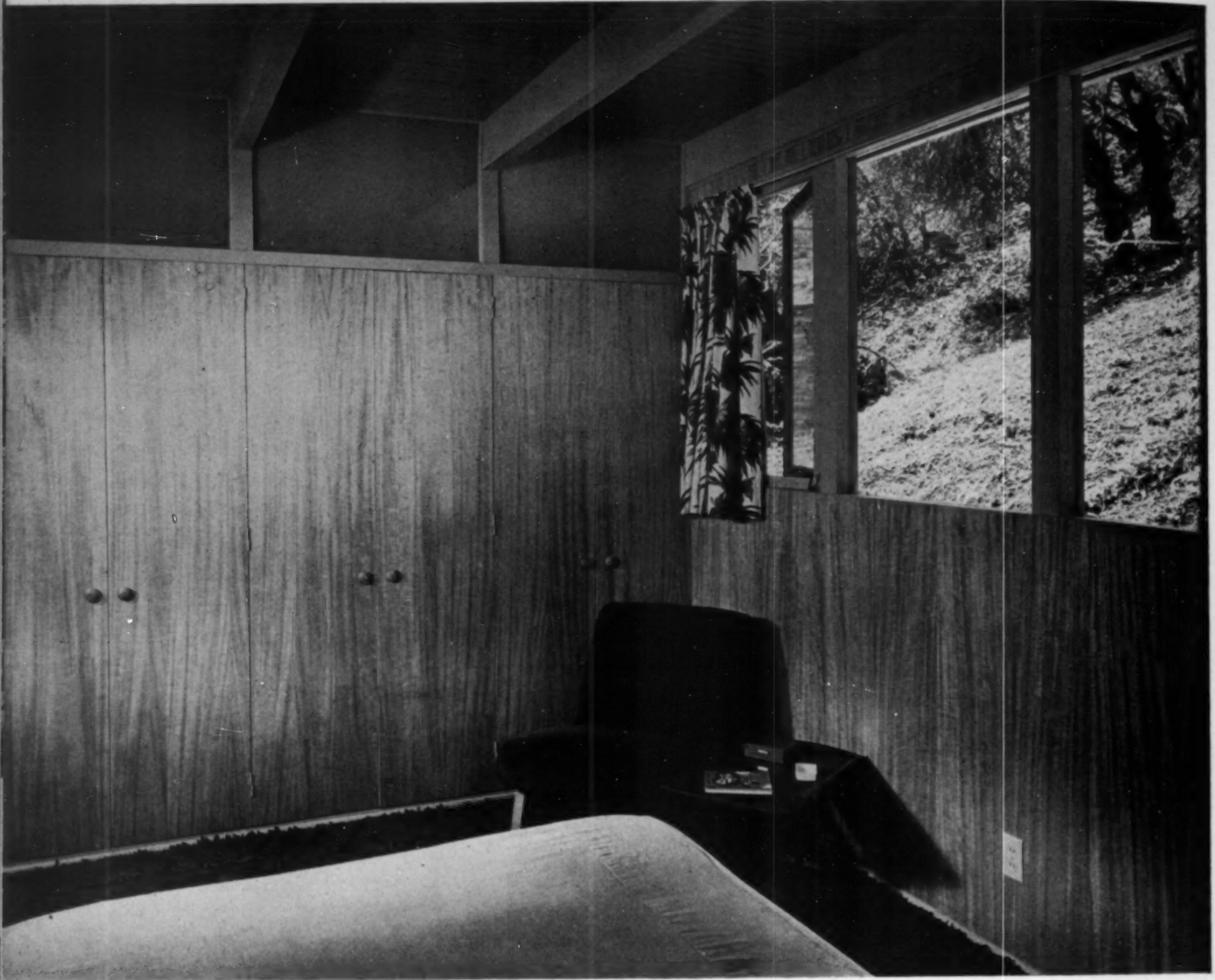


The site of this small, all-plywood residence in California is long and narrow, fronting on a busy boulevard, and extending back to the foot of a wooded hill. The house, consequently, is placed lengthwise on the lot, shielded from the boulevard in part by the garage. Privacy will be increased further by a fence, not yet built, extending from the entrance steps at the inner corner of the garage across the front of the lot and half way up the south side.

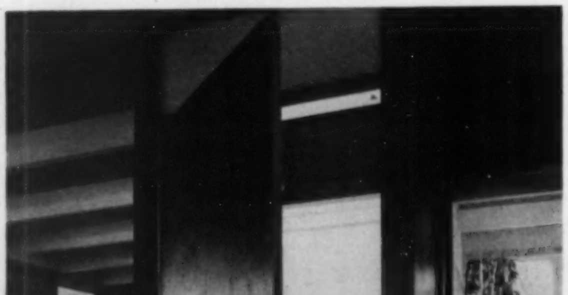
The structural scheme (see detail on page 107) is a 3-ft. module setup with posts, braces, fireblocks, sills, headers and plates cut to size and grooved or drilled with a template before erection. No door or window frames are used; stationary glass is slipped into the grooved posts and puttied with a calking gun, eliminating vertical stops. Note the hinged ventilating boards between the ceiling beams in living room.


BEDROOM
12'-0" x 12'-0"
BATH
KITCHEN
12'-0" x 12'-0"
CL
CL
BED CL
ENTRY
LIVING
12'-0" x 21'-0"
WOOD BOX
PATIO
GARAGE
12'-0" x 21'-0"
PARKING
0
5
10

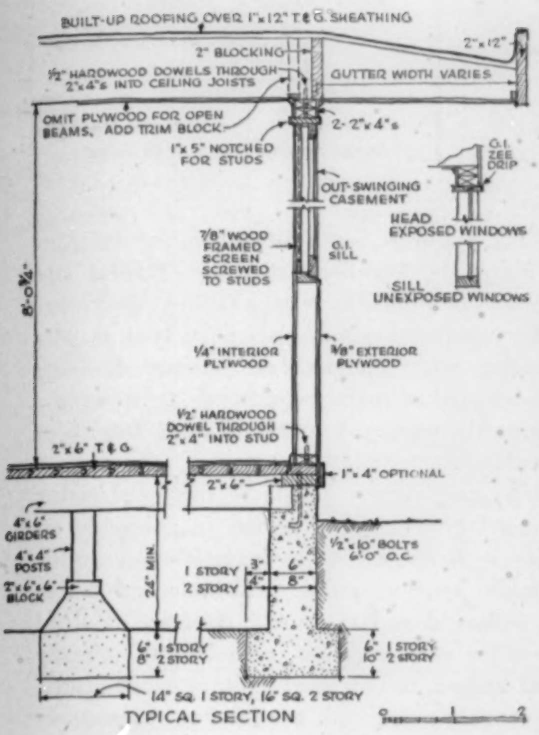




Julius Shulman Photos



The single bedroom is placed at the rear of the house for maximum privacy, with its windows looking up the steep hill into the woods. One whole side is given over to a built-in wardrobe with indirect lighting above serving both it and the bedroom. A rollaway guest bed is stored in a specially designed niche in the entry closet (left), accessible also from the bedroom closet


BUILT-UP ROOFING OVER 1"x12" T&G. SHEATHING
2" BLOCKING
2"x12"
½" HARDWOOD DOWELS THROUGH 2"x4"s INTO CEILING JOISTS
GUTTER WIDTH VARIES
OMIT PLYWOOD FOR OPEN BEAMS. ADD TRIM BLOCK
2-2"x4"s
1"x5" NOTCHED FOR STUDS
G.I. ZEE DRIP
OUT-SWINGING CASEMENT
HEAD EXPOSED WINDOWS
7/8" WOOD FRAMED SCREEN SCREWED TO STUDS
G.I. SILL
SILL UNEXPOSED WINDOWS
8'-0¾"
¼" INTERIOR PLYWOOD
⅜" EXTERIOR PLYWOOD
½" HARDWOOD DOWEL THROUGH 2"x4" INTO STUD
2"x6" T&G.
1"x4" OPTIONAL
2"x6"
4"x6" GIRDERS
4"x4" POSTS
2"x6"x6" BLOCK
24" MIN.
½"x10" BOLTS 6'-0" O.C.
1 STORY
2 STORY
3"
6"
4"
8"
6" 1 STORY
8" 2 STORY
6" 1 STORY
10" 2 STORY
14" SQ. 1 STORY, 16" SQ. 2 STORY
0
1
2

TYPICAL SECTION

The typical section (above), developed by the architect for either one- or two-story houses shows the simplicity of construction and absence of any superfluous trim. The breakfast area (right, below) overlooks a small paved patio between the house and the garage

CONSTRUCTION OUTLOOK FOR 1949

By Thomas S. Holden
President, F. W. Dodge Corporation
and Clyde Shute
Assistant Vice President and Manager, Statistical and Research Division

ELECTION results dispelled the illusion that there is any accurate method of forecasting the actions and decisions of millions of people free to vote as they choose. The same freedom exists with respect to buying goods and services, to planning, altering or postponing construction projects.

We, therefore, take occasion to restate the position F. W. Dodge Corporation has invariably assumed in presenting each November a statement on the construction outlook accompanied by construction volume estimates for the ensuing year. In our view, such estimates are not prophecies or predictions; they merely represent our judgment, based on such information as we assemble and appraise to be significant, as to a safe basis upon which executives in construction industry enterprises may make forward plans.

According to our analysis, election day found the American economy at or near the peak of a postwar boom. While such inflationary aspects as vastly increased money income, shortages of many categories of goods and services, and rising prices, wages and costs of production and construction have been conspicuously present, the boom has been unique in a very important respect. It has not been accompanied by a boom psychology. There have been no significant speculative excesses in security prices, real estate or commodity inventories. This postwar boom has, therefore, not generated the forces that usually cause severe reversals. The sanity and cautious optimism of the vast majority of people have held inflationary forces in check while enormous production on farms and in factories has moved rapidly in the direction of balancing the supply of many goods and services with the enormous demand.

As late as October it appeared to us and to a majority of the 112 leading economists who participated in the outlook survey we then conducted, that the most likely picture in 1949 would be about this: moderate declines in wholesale prices of commodities in general, in cost of living, industrial production and employment: in short, a flattening of the boom, with further progress toward stabilization a little below 1948 levels, all without the prospect of serious price deflation and the major problems of business adjustment that always accompany rapid price declines.

Approximate market balance, with a tendency to lowered prices, has appeared principally in consumer goods lines: farm products, foods, hides and leather products, textiles and textile products. In most capital goods lines, deferred demands and backlog orders still prevail; this is reflected in the price trends of metals and metal products, which continue slightly upward.

Similar mixed trends are reflected among the construction materials. Lumber has been plentiful and wholesale prices of lumber have been falling. Most other non-metallic construction materials have been in adequate supply, with competitive pricing. Building products fabricated of metal continue in tight supply, tending upward in price, tending to limit total construction volume.

The Democratic victory points to increased rather than decreased governmental action in economic affairs. There is likelihood of early legislation in the fields of public housing, public health, federal aid to education, enlarged social security coverage. Federal expenditures for such purposes, added to the already high federal budget, to increased military expenditures, to foreign economic aid, and, possibly, to rearmament assistance to friendly foreign governments would tend to create additional inflationary pressure on commodity prices and construction costs. However, actual expenditures for new social programs are not likely to be very large in the next calendar year.

There will be battles in the 81st Congress between forces pushing for lavish expenditures and those aiming to hold the federal budget in bounds. Consideration will undoubtedly be given to price control legislation. The election result increases the probability of further wage increases in key industries.

On the basis of our appraisal of the climate in which the construction industry will function next year, our 1949 estimates indicate an anticipated decline in those nonresidential building classifications which are predominantly private: commercial, manufacturing, religious, and social and recreational buildings. Bases of these anticipated reductions are the following facts: buying resistance is being felt in some of these lines already, equity financing has become increasingly difficult, mortgage credit has tightened, confidence of many potential private investors has probably been shaken in some degree by the results of the national election.

The same factors are likely to affect the volume of private residential building. The home builders responsible for record housing production in 1948 now rather generally realize the necessity of producing and offering for sale houses with lower price tags than those attached to a large proportion of the 1948 output. This will be particularly difficult of attainment if renewed inflationary forces should tend to further rises in material prices and building wage scales. A moderate slowing down of activity during part of the year would facilitate market adjustment.

Needs for rental housing continue very great. Recent

TABLE 1: ESTIMATED PHYSICAL VOLUMES OF BUILDING—*37 EASTERN STATES*

(on the basis of F. W. Dodge Corporation's contract records)
Figures in millions of square feet

	*Estimate Year 1948	Estimate Year 1949	Percentage Change
Commercial buildings	104	95	− 9%
Manufacturing buildings	109	93	−15%
Educational and science buildings	70	77	+10%
Hospitals and institutional buildings	36	40	+11%
Public buildings	6	6	0%
Religious buildings	21	17	−19%
Social and recreational buildings	22	19	−14%
Miscellaneous non-residential buildings	19	19	0%
Non-residential buildings	387	366	− 5%
Residential buildings	468	429	− 7%
New floor space incidental to heavy engineering projects	1	1	0%
Total building floor space	**856**	**796**	**− 6%**
Dwelling units:			
Dodge coverage basis	*375,000*	*349,000*	*− 7%*
B. of L.S. over all estimate basis	*950,000*	*884,000*	*− 7%*

**10 months actual, last two months estimated*

TABLE 2: ESTIMATED VOLUMES OF BUILDING AND ENGINEERING CONTRACTS

(in accordance with 37-states contract statistics; figures in millions of dollars)

	*Estimate Year 1948	Estimate Year 1949	Percentage Change
Non-residential building	$3,675	$3,490	− 5%
Residential building	3,700	3,440	− 7%
Total building	**$7,375**	**$6,930**	**− 6%**
Public works and utilities	2,280	2,500	+10%
Total construction	**$9,655**	**$9,430**	**− 2%**

**10 months actual, last two months estimated*

NOTE:

These dollar figures differ from those of the over-all 48-state estimates of governmental agencies in three important particulars.

1. **These figures cover 37 states; current volume in the 11 western states appears to be approximately one-third of 37-states volume.**
2. **These figures virtually represent work started; government over-all figures are estimates of work put in place; trends shown by contract statistics generally tend to anticipate trends shown by work-in-place figures.**
3. **Government over-all figures include estimated volume of low-valuation projects and projects in *rural* and semi-rural areas beyond the range of Dodge coverage.**

legislation may stimulate this type of activity. Even if the next Congress should authorize a government housing program involving subsidies, it may not be large enough or effective soon enough to offset probable decline in private building of single-family houses. We have estimated a moderate decline in single-family houses and apartment building equal to the 1948 rate, with the net effect of a moderate decline in total new dwelling units. Housing production, even at the reduced rate we anticipate, would go far toward ending the acute phase of the housing shortage.

Educational buildings, hospitals and institutions, and public works and utilities projects all seem likely to increase, in view of the status of authorized programs and appropriation commitments. Maintenance and repair work and farm building, which are not included in the estimates, are more likely to decline somewhat than to increase, we believe.

Estimates of 1949 building activity are presented in terms of physical volume (new floor space in square feet) in TABLE 1. Solely for the purpose of combining estimates of heavy engineering construction with estimates of building volume, a second table of dollar figures is added, since there is in general use no other common unit of measurement for these two major divisions of construction activity.

For translation of physical volume figures into dollar figures, an assumption about average unit costs of 1949 building projects is necessary. The figures of TABLE 2 assume average building costs approximating 1948 averages, an assumption involving major uncertainties. Marked change in the purchasing power of the construction dollar could alter these dollar estimates radically even if the volume estimates prove reasonably close. On the same assumption the dollar increase estimated for public works and utilities is intended to indicate a corresponding increase in physical volume of heavy engineering work.

RECREATION BUILDINGS

ARCHITECTURAL RECORD'S

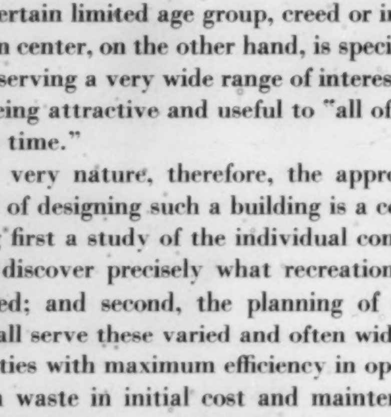
BUILDING TYPES STUDY NUMBER 144

THE PLANNING OF RECREATIONAL CENTERS

By F. Ellwood Allen and Weaver W. Pangburn *

THE modern community recreation center, as exemplified on the following pages, seems to merit the designation "community building" to an even greater degree than any other structure in the large category of buildings serving the public. Schools, churches, clubs, etc., are all to some extent specialized in that primarily they serve a certain limited age group, creed or interest. The recreation center, on the other hand, is specifically dedicated to serving a very wide range of interests and ages, and to being attractive and useful to "all of the people, all of the time."

By its very nature, therefore, the approach to the problems of designing such a building is a complex one, involving first a study of the individual community, in order to discover precisely what recreational facilities are needed; and second, the planning of a structure which shall serve these varied and often widely dissimilar activities with maximum efficiency in operation and minimum waste in initial cost and maintenance. This article will attempt to outline some of the major considerations, along these lines, with which the planner will be confronted.



The natural tendency on the part of many communities, when faced with the need for establishing some kind of central recreation facility, is to attempt to utilize their existing school plant for this purpose. In some communities the school may meet the need; but in the majority of cases it has not been designed as even a supplementary community center, and its existing facilities are not adaptable to a diversified recreation program. Ideally, a well-rounded recreation program must have a building with facilities serving the many recreational interests of the people of the community, built on a site located near the center of the community and, preferably, large enough for a variety of outdoor facilities.

For a quick, bird's eye view of the basic components of a recreation center, as well as a few approximate figures relating certain specific facilities to the community's population, we quote from a handbook of the National Recreation Association.

Following are the standards for neighborhood recreation areas and facilities, as prescribed by the National Recreation Association:

1. There should be a community recreation building or center within a half mile to a mile of every home, the distance depending on population density and ease of access.

2. Such a building, or center, should be provided for at least every 20,000 of the population.

3. It should be generally and regularly available for the recreational use of the entire community throughout the year.

4. It should provide most of the following facilities:

Gymnasium, with seats for spectators, lockers and showers, suitable for basketball, volley ball and other floor games, gymnasium classes and dances, socials, holiday celebrations and similar activities.

Assembly hall or auditorium with stage, and preferably with removable seats, for concerts, lectures, movies, dramatics, rallies, banquets, recreation demonstrations and community gatherings.

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* The F. Ellwood Allen Organization, Park and Recreation Planners. Antonin Raymond and L. L. Rado, Architects of the Projects.

Room for informal reading and quiet table games, where an individual may drop in for a few minutes or spend an evening with one or more friends.

Room equipped for various types of *arts and crafts activities.*

Social or play room for small group parties, square dancing, play rehearsals, and other activities involving fairly small groups.

Room *for table tennis,* billiards, darts, shuffleboard and active table games.

Two or more club or multiple use rooms for club and committee meetings and hobby groups of all kinds.

Refreshment stand or snack bar.

Kitchen for preparing meals and simple refreshments and also for cooking and canning classes.

Office for the director.

Essential service rooms and facilities including ample storage spaces for equipment and supplies.

As a guide in making a survey of recreational facilities, whether planned or existing, the Association offers the following suggestions:

An appraisal of a city's indoor recreation resources must take into account not only the multiple use recreation buildings but all buildings that have facilities regularly available for community recreation use. The specific interests of different communities vary, but experience has shown that in general the indoor facilities required to serve these interests are similar. Local conditions or needs may make desirable special features such as a music room, pistol range, bowling alleys, dark room or library.

The following standards represent the indoor facilities that should be available for community recreation use in every city, regardless of the type of building in which they are provided:

A *gymnasium* for each 10,000 of the population or less.

An *auditorium or assembly hall* for each 20,000 or less.

A *social room or play room* for each 10,000 or less.

An informal *reading and quiet game room* for each 10,000 or less.

An *indoor game room* for each 10,000 or less.

A room equipped as an *arts and crafts workshop* for each 10,000 or less.

A *club or multiple use room* for each 4000 or less.

An *indoor swimming pool* for each 50,000 or less.

Function and Design

The nature of a community recreation building, and its use, is such that the most meticulous analysis of the recreation program and the supervisory problems entailed in keeping it moving smoothly must precede design. The program itself will spring from the needs and desires of the people of the community, who will be the users of the facilities. But the supervisory and administrative problems are of equal importance. The recreation building must mean many things to many people at the same time; its director will face a continual stream of operational problems including scheduling of facilities, distribution of supplies, supervision of activities, direction of personnel, maintenance, etc. Good recreation design must, therefore, not only provide the right facilities, but also arrange them in relation to one another so effectively that the active direction of the program can function with maximum convenience and efficiency.

Unit Planning

As in the case of an intelligently conceived, long-range school building program, the recreation center should be planned as a whole, even though lack of available funds may prohibit the complete construction of the building designed to meet all present and future needs. In such a case, rather than build an inadequate structure, it is desirable to design the building so that unit construction is practical.

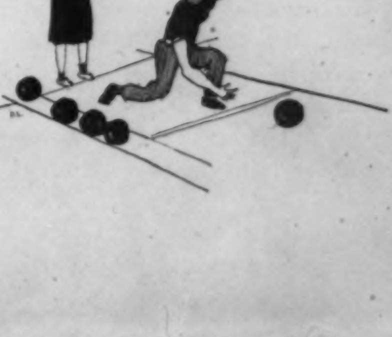
Sketches by Leavitt

In planning for unit construction, a schedule of priorities should be set up based upon the most urgent community need and the unit designed to meet that need built first. Expandability of the project should be anticipated in the original design so that as activities increase and additional funds permit, units may be added without requiring basic changes and extensive alterations.

Choice of Facilities

Great care should be taken in properly relating the choice of facilities to the particular needs of the community; the more so because these needs will not remain constant. Not only do the interests of people vary with their age, background, experience and opportunities, but many persons — unaware of their potential interests and abilities because of limited recreation experience — will find themselves using the facilities more and more as the scope of their interests and participation and the measure of their skills increase.

Selection of facilities will also be somewhat influenced



by consideration of whether the program shall be partly or wholly self-supporting. Fortunately, in many cases the most popular facilities — such as bowling alleys, a dance floor, basketball courts, snack bars, etc. — are also the ones which may be used to provide income.

Particularly if the facility is an expensive one, the number of expected participants will considerably affect the decision on whether or not to include it in the program. A dark room for a camera club, for example, may appeal to relatively few individuals but they will be intensely interested in it and it will represent a comparatively small outlay of total funds. A gymnasium built simply for basketball, on the other hand — especially if not designed for large spectator crowds — takes a great deal of space and represents a large investment for relatively few participants.

In order not to waste money on duplication, due weight must be given to the availability to the community of such facilities as bowling alleys, movies, etc., whether of a public, semi-public or commercial nature. The only condition under which duplication might be considered is in those cases where desirable community facilities, operated at cost, might reach many more individuals than when operated commercially for profit.

wood shop

One of the more popular and constructive features of any recreation center, and one which would also rate a high priority, is the crafts room. With more leisure time at their disposal, people are discovering the pleasures of developing creative skills of one sort or another. A real need for properly equipped places where they can learn something of the arts of wood-working, ceramics, metal-working, weaving, etc., has followed. Few homes have sufficient space available for a work shop, and few owners the funds necessary to equip them, but when space and tools are owned cooperatively the cost is not prohibitive.

Lounge

Stage

In assigning priorities to certain facilities, it should be borne in mind that some of them offer intangible values which must not be underrated. The lounge room, for example, though it has no income-producing importance, invariably helps to make the center a success. Its informal welcome and the opportunity it affords for casual sociability are essential factors in the recreation program. A stage, with proper lighting and other equipment may seem an extravagant item; but a well-produced theatrical performance, with its hours of intimate companionship in rehearsal, its development of satisfying creative ability, its tangible evidence of accomplishment and its entertainment of large audiences will often be found to make returns justifying the initial outlay.

Other units of the recreation building which will usually merit serious consideration in the initial selection of facilities are:

clubs

Club and committee rooms. Frequently the club idea, based on common interests among the members, promotes close and congenial fellowship; and invariably the efficiently run recreation program involves many committees which require places for meetings.

The library. This may be anything from an incidental collection on the shelves of the lounge to a large and fully modern service designed for constant use by the whole community. Associated with the library idea is the sound-proof room for the playing of records, a feature which has proved attractive to the young people and is accepted as worth while.

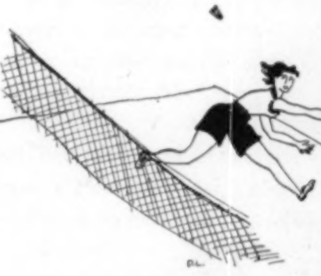
pool

The swimming pool. Due to relatively heavy initial and operating costs of indoor pools it is not surprising to find outdoor pools more numerous. The ideal pool, however, is one designed for year-round use, and there is a definite trend in that direction at the present time.

Storage

service

Storage and service facilities. In the operation and administration of a community recreation building, the provision of adequate and correctly located storage and service facilities often spells the difference between a smoothly running plant and a constant headache. Among service facilities to be considered are a check room for hats and coats available to multiple use and lounge units, the room for issuing recreation equipment, and the utility repair room for the custodian, equipped with tools for the emergency repair of the building's mechanical, electrical and sanitary equipment.



Multiple Use of Facilities

As a feature promoting economy as well as maximum use of all facilities provided, the principle of multiple use deserves special mention. The term, of course, simply implies the planning of facilities with such flexibility that a given room or floor area may be put to various uses, either at different times or at the same time.

Perhaps the best example of the multiple use facility is the gymnasium as it appears in a well-designed recreation center. By contrast with the usual school or college gymnasium, this room has to serve a far broader program than merely the playing of basketball and the use of standard gymnasium apparatus. When built on a generous scale as a combined gymnasium-auditorium with a good stage and dressing rooms, it may serve such varied additional uses as volley-ball, paddle tennis, deck tennis, shuffleboard, badminton and indoor baseball; also organized games for children, dances, banquets, lectures, concerts, hobby or garden shows, trade exhibits, movies, etc.

Some of the multiple uses above mentioned suggest the need for having kitchen facilities and adequate, ingenious storage space nearby.

The lounge, too, may be used for a number of different purposes, but it should be recognized that the multiple use idea can be carried too far for efficiency unless the basic character of the various facilities is respected and preserved. For example, trying to combine pool tables and table tennis in a room primarily intended for such quiet games as cards, chess and checkers will not work. However, these quiet games usually can be assigned to rooms used for reading without adverse affect.

The whole principal of multiple use, as a matter of fact, needs to be constantly related to the amount of money available and the degree of perfection required in any particular facility. The combined auditorium-gymnasium mentioned above could never attain the perfection or efficiency afforded by separate facilities. It would be unreasonable to expect the same satisfactory acoustics in a gymnasium as could be attained in an auditorium or concert hall designed with that special characteristic as a major requirement. Where patronage is large or funds are ample, separate units could be justified; but in the much more numerous cases where those factors are lacking provision for multiple use will offer a practical compromise.

Size and Number of Facilities

As to the size and number of required facilities, too large and too many is as bad a fault as too small and too few. Admitting the difficulty of striking a precisely correct balance between these two extremes, it will none the less be found that a careful and detailed study of the community's interests will result in much more intelligent planning in this respect. In general, it seems wise to plan the building for something short of peak crowds — something close to average patronage — in order to assure the most efficient use of the plant most of the time; and to find ways of utilizing any space which tends to remain idle — for example the stage or library can serve quite adequately for occasional club or committee meetings.

Standard data on dimensions of the various facilities is readily available elsewhere and will not be considered here, but the following observations, based on experience, may prove helpful.

To do certain things satisfactorily, certain minimum dimensions are necessary. If the gymnasium or its equivalent is to be right for basketball, volley ball, badminton, etc., the floor must not be less than 50 ft. wide, 75 ft. long and 20 ft. high. For competitive play, a gymnasium length of 90 ft. is desirable. Plays can be produced on makeshift and small stages but it is desirable for good results, and necessary in most productions, to have a stage 40 ft. wide by 24 ft. deep with a proscenium 24 ft. wide and at least 12 ft. high to its arch. If the interest in drama is keen and the funds permit, it is desirable to have a stage loft two and one half times the height of the proscenium opening. However, a space 10 to 12 ft. above the top of the proscenium will suffice.

The number of locker and dressing rooms, showers, and toilets depend on the capacity of the building and whether there is a playfield. If gymnasium, playfield and auditorium are included, there will be more such facilities than in just a recreation and social building. It is common to allow 8 sq. ft. of dressing room space per locker up to a load of 40, with larger allowance per locker if more of a load.

For a building serving a population of 20,000 people or less, four to six club rooms should prove sufficient. Two of these might be 12 by 16 ft., the other 20 by 30. Lockers and cupboards should be provided for storing the records and equipment of each organization. Folding partitions in the club rooms have been found to afford a very useful degree of flexibility.

Bowling alleys should be provided with adequate space for a few spectators; 110 ft. is a desirable length. Six alleys should be the minimum in any building, and eight to ten is desirable; where too few alleys are provided, the waits between turns is too long and results in public loss of interest in the facility.

If additional units of the building are to be constructed, from time to time, the facilities in all major service units such as dressing rooms, showers and lockers, heating and other utilities, must anticipate the loads to be added or be readily susceptible of enlargement.

Ease of Circulation

Ease and speed of circulation are of special importance in the recreation center. Part of the problem is to provide adequate and convenient passageways, but to do so without creating a condition which would interrupt or

interfere with the appropriate use of any of the facilities; another part is to avoid devoting too much footage to them. There is a useful parallel in hotel design: the modern hotel, with relatively narrow corridors, and small lobby space, still achieves vastly improved circulation by comparison with the older types which had poor returns from a far greater investment of total available area.

Storage Space

Adequate storage not only makes for convenience but it also reduces the service otherwise required of custodial personnel. It is a corollary of the multiple use of facilities. The gymnasium-auditorium after use for a big dinner must be cleared quickly for the next use. Hence the advantage of rolling the chairs under the stage and stowing the tables in a sizable room located for the purpose at the end of the stage, or taking both to the floor below on an elevator built under the stage. A listing of the major facilities requiring storage follows:

Club rooms — built in closets and cabinets for supplies, records.

Dressing rooms — permanent lockers or baskets.

First aid room — supply closets, supply cabinets.

Office in lobby — cabinets, shelves for supplies.

Recreation — equipment room — shelves, closets.

Craft room — shelves and cabinets for supplies, tools.

Stage — property room adjacent or below.

General service and heating room — supplies, fuel, tools.

Each floor — closets for cleaning supplies, toilet supplies, mops, brooms, etc.

Snack bars — shelves, closets.

Kitchen — preserving units, cabinets, closets, shelves.

Maintenance

Maintenance is a matter of first importance in the community recreation center; the building will have hard use, yet must be kept attractive and serviceable at all times. Good design pays big dividends here.

The gymnasium floor must be built of wood, but many of the floors elsewhere may be hard surfaced or have resilient flooring. Washable materials — permitting quick and thorough cleaning — should be used for walls and floor of locker and dressing rooms. Permanent lockers should be set on concrete bases or suspended from the ceiling — never mounted on legs. The kitchen should be designed so that it can be hosed down. Exterior materials must also be selected with a view to reducing maintenance and replacement costs.

Costs

Finally, there is the always imperative question of building cost — how much building will the community get for how much money? And how much money ought the community to spend at this time? The following generalities may be found useful:

A long-range plan, involving unit construction, will inevitably permit the design of a more ambitious project than would be the case of complete and final construction of the building were to be decided upon. A short term plan is seldom justified and usually means a short-sighted plan which fails to consider increasing populations, increased public interest in the center, etc. The virtual impossibility of making substantial additions to a recreational building not originally designed with that in mind, is too obvious to architects to need further mention here.

Where unit construction is decided upon, the building committee can study preliminary plans and cost estimates, come to some decisions on whether the cost of certain units is worth the necessary immediate outlay, and thus allocate priorities with a fair knowledge of what they are doing. The campaign to raise funds for the new building will also find much useful material in this phase of the architect's work.

Another item which needs early settlement is whether the community, having provided the building, will expect the building for the most part to carry itself. Where this is the case, the committee must be sure to include the kind of facilities that will pay their way, and also work out the kind of policies on charges, rentals, etc., which will produce yet still retain the club-like atmosphere of the center.

As to operating costs — which like building costs must vary greatly — the following rule may at least serve as a guide: A building costing $500,000 would require for annual operation about 8 to 10 per cent of the initial cost. As the cost of the structure increases, operating costs diminish proportionally as the cost of the building is less.

A few of the publications on community recreation building published by the National Recreation Association, 315 Fourth Avenue, New York 10, N. Y.

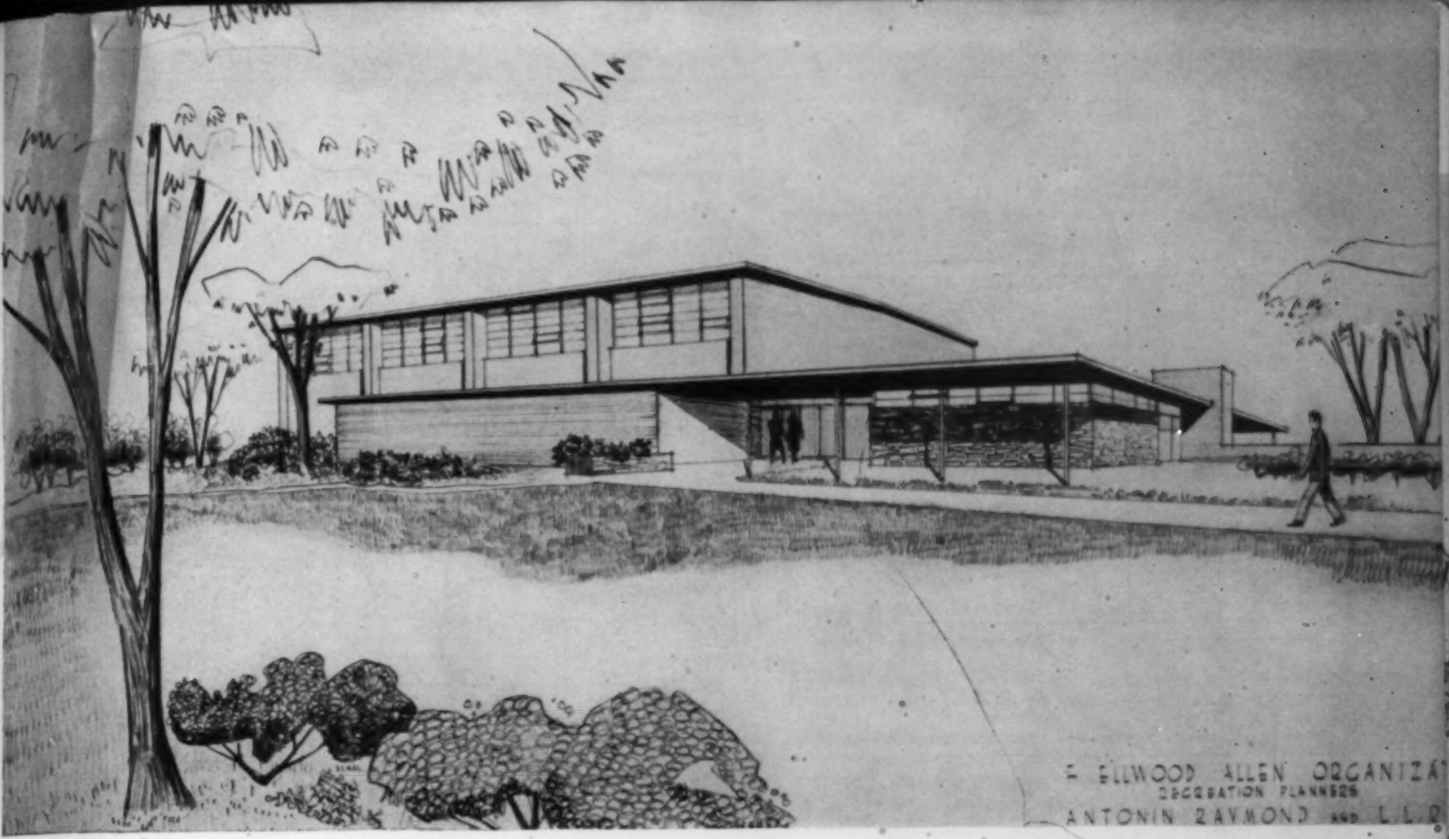
Planning A Community Recreation Building. The important principles and features of a wisely planned building.

Recreation Areas — Their Design and Equipment. Containing 169 illustrations, diagrams and plans of areas and buildings, this volume is a guide to the planning of playgrounds, playfields and athletic fields.

Selected Bibliography on the Design and Equipment of Recreation Areas and Structures (MP 161).

Standards for Neighborhood Recreation Areas and Facilities. Basic principles for the provision of recreation space and standards for outdoor space and indoor facilities. Agencies concerned with recreation are discussed and methods of cooperation indicated. •

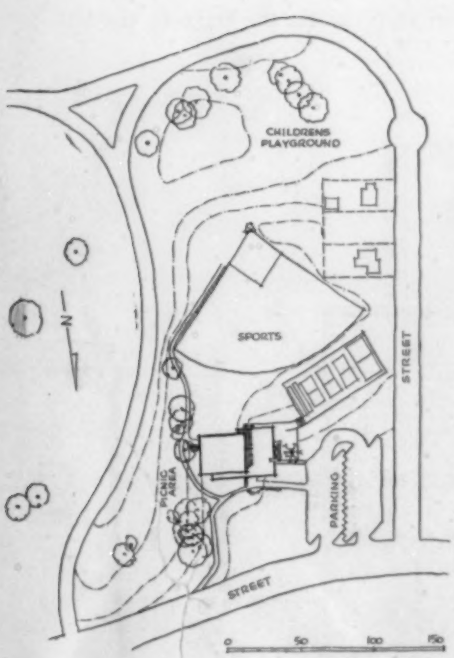
Standards for Municipal Recreation Areas. A description of the various types of municipal recreation areas and a summary of the standards that have been proposed by many authorities.


F. ELLWOOD ALLEN ORGANIZA
RECREATION PLANNERS
ANTONIN RAYMOND and L.L.R

NEIGHBORHOOD RECREATION CENTER, SUMMIT, N. J.

Antonin Raymond and L. L. Rado, Architects

F. Ellwood Allen Organization, Park and Recreation Planners

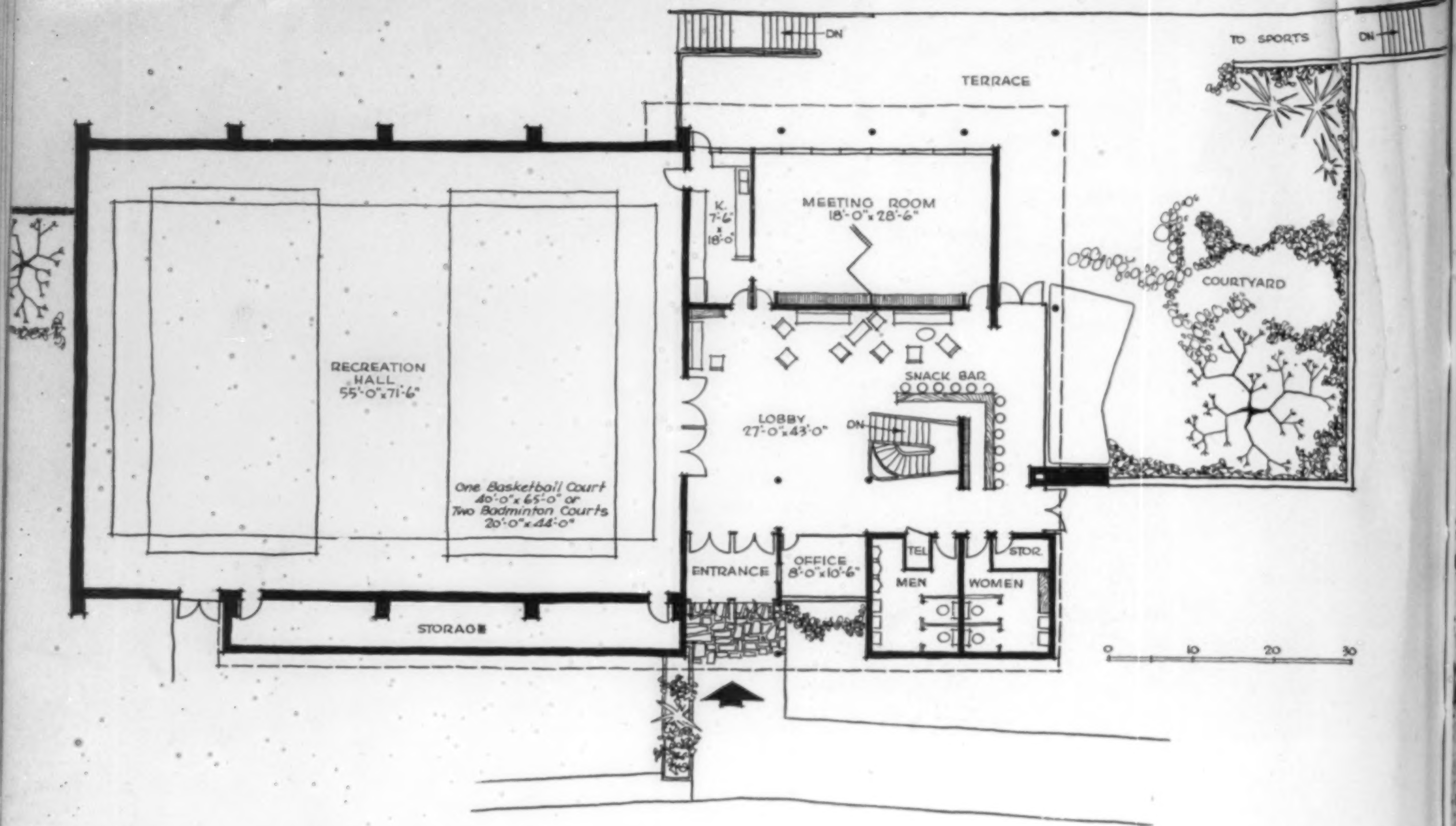

CHILDRENS PLAYGROUND
SPORTS
STREET
PICNIC AREA
PARKING
STREET
N
0
50
100
150

RECREATION CENTERS need not — often should not — be designed to serve entire communities; nor need they be in any way connected with the employee problems of industry. As in the case of the Summit Center, shown here and on the following two pages, a project of this sort may result simply from the special need of a neighborhood.

This particular center, two schemes for which were drawn, is designed to serve a locality of about 3000 population, comprising a portion of Summit. On occasions the major facilities will be used for functions involving the entire community, but the more limited participation determined the size of the plant.

The new structure will owe its existence, in large measure, to the fact that a neighborhood school, including an auditorium, gymnasium and other facilities, was sold for industrial research purposes, thus depriving the neighborhood of its principal recreational and social facility.

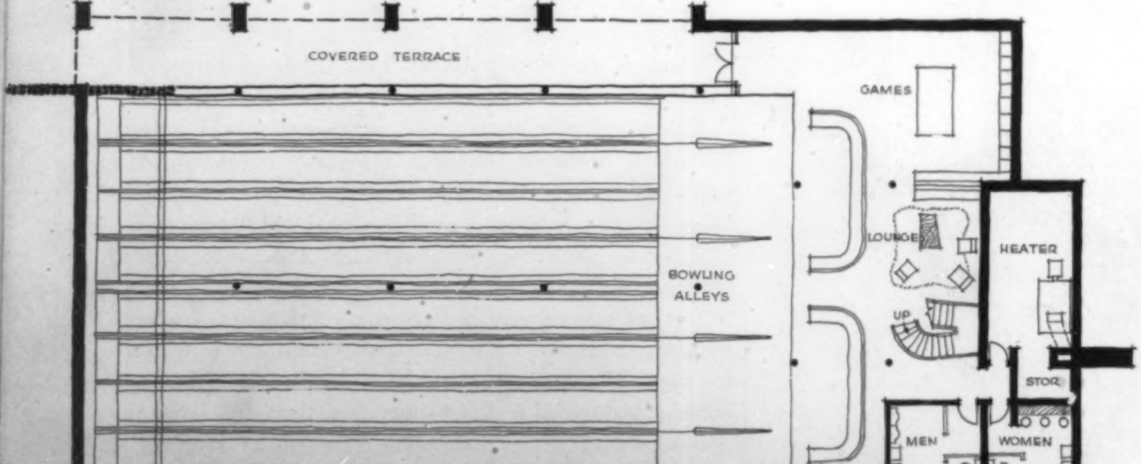
The plans drawn for the new center are of special in-

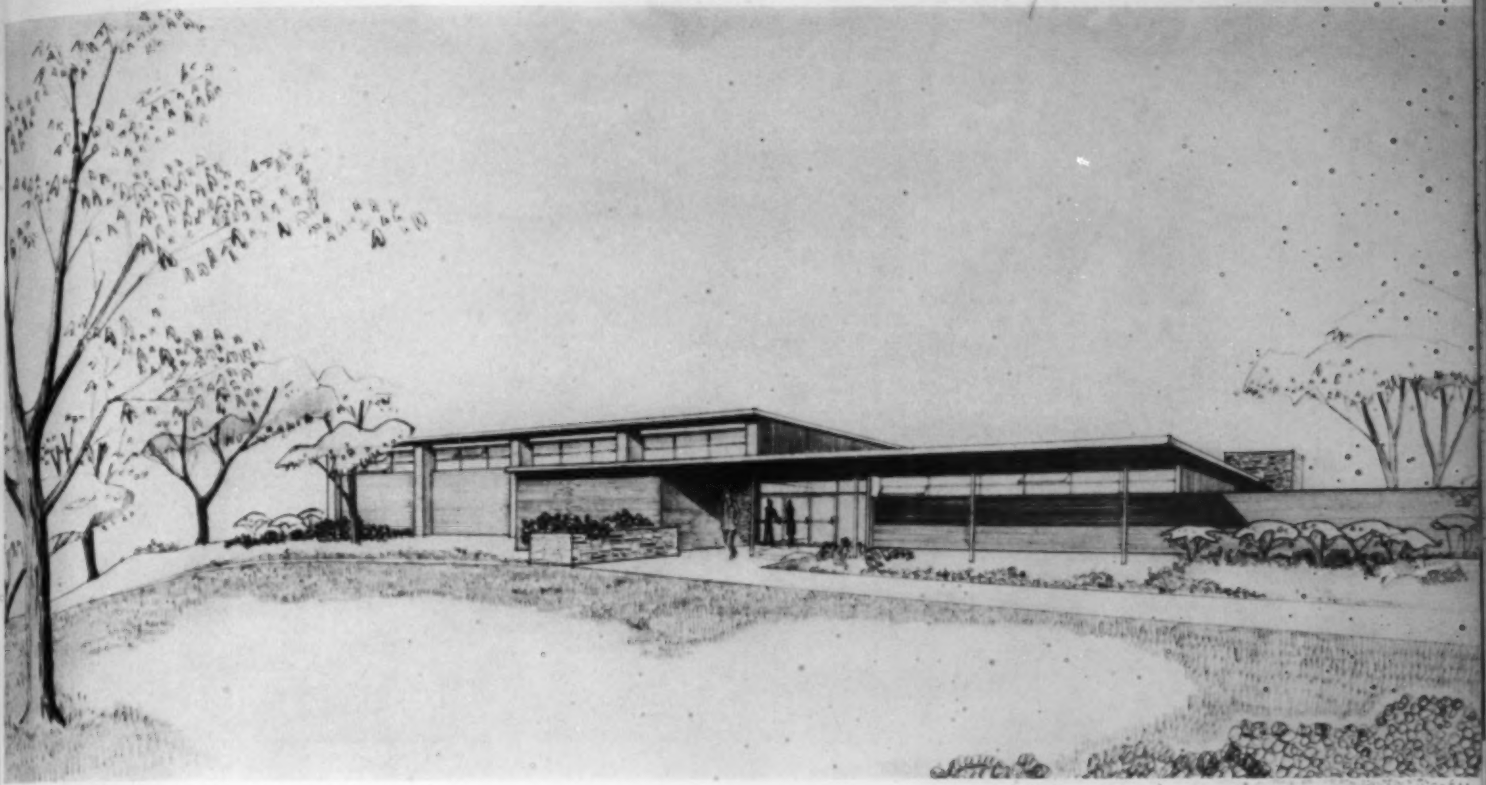

DN
TO SPORTS
DN
TERRACE
MEETING ROOM
18'-0"x28'-6"
K.
7'-6"
x
18'-0"
COURTYARD
RECREATION
HALL
55'-0"x71'-6"
SNACK BAR
LOBBY
27'-0"x43'-0"
DN
One Basketball Court
40'-0"x65'-0" or
Two Badminton Courts
20'-0"x44'-0"
ENTRANCE
OFFICE
8'-0"x10'-6"
TEL
STOR
MEN
WOMEN
STORAGE
0
10
20
30

terest, by comparison with those shown on subsequent pages, because of the more modest size of the plant. Thinking in terms of city planning, and the application to recreational facilities of a systematic scheme similar to those developed for educational and public health facilities, the smaller of the two buildings for Summit might be considered as economically feasible for the small neighborhood planning units into which a city might be divided. The larger building is suited to a peculiar local situation.

Again, in terms of a recreational center for an entire community, the larger structure might be taken as an indication of what the small town — little more than a village — might successfully undertake to provide. These generalizations do not, of course, refer to the specific facilities afforded by the Summit Center; these have been provided because they reflect major local interests which, in other localities, might be different.

The larger of the two schemes, shown in perspective on page 115 and in plans on the page to the left, pro-

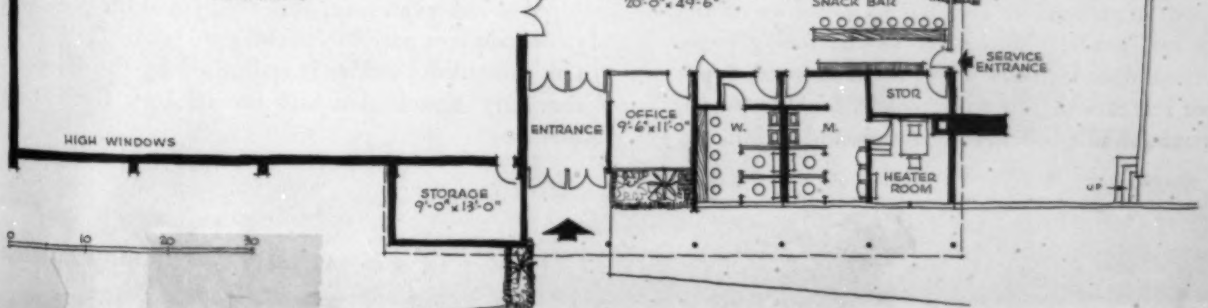

COVERED TERRACE
GAMES
LOUNGE
HEATER
BOWLING
ALLEYS
UP
STOR
MEN
WOMEN
LOCKERS
LOCKERS
GROUND FLOOR

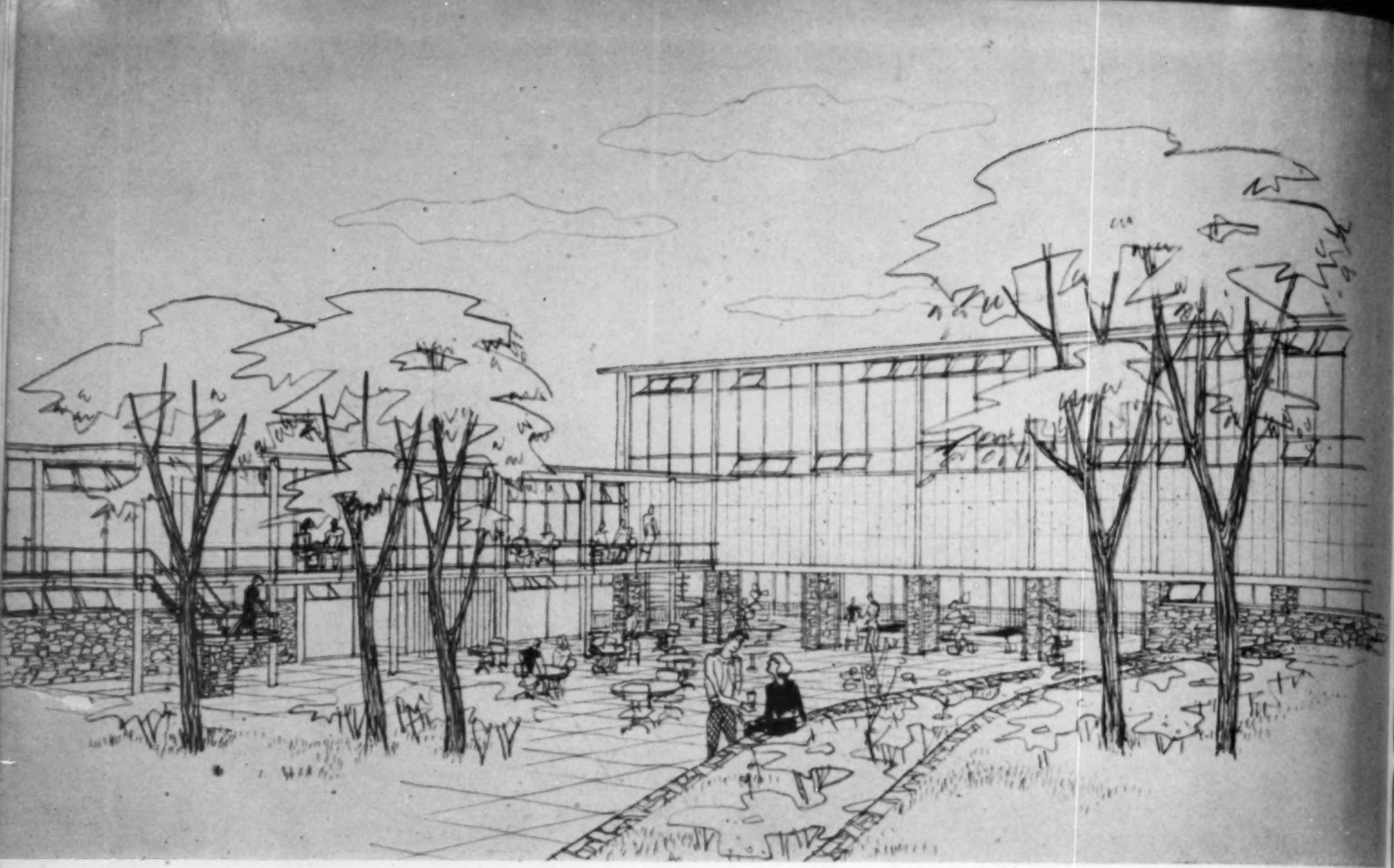


vides two major indoor facilities: a standard basketball court, with all the attendant multiple uses which these dimensions allow; and an eight-lane bowling alley at a lower level taking advantage of the slope of the ground. Kitchen, snack bar, clubrooms and the usual services complete the plant. It is worth noting, with reference to the small neighborhood or community, that almost all facilities are in a high degree income-producing.

The smaller alternative scheme for Summit, shown on this page, might be considered as setting something like a minimum standard for public recreation buildings, so far as facilities are concerned. The bowling alley is omitted, and the recreation hall is smaller. The emphasis is on the social aspects of recreation rather than on the athletic. The recreation hall is, however, large enough for many active games, even though not adapted to accommodating many spectators as the games themselves use all the floor area.

The project is planned for the Board of Recreation Commissioners, Summit, N. J.


DN
COVERED TERRACE
K. 9'-6" x 19'-6"
MEETING ROOM 19'-6" x 29'-6"
RECREATION HALL 40'-0" x 60'-0"
LOBBY & LOUNGE 20'-0" x 49'-6"
SNACK BAR
SERVICE ENTRANCE
STOR
OFFICE 9'-6" x 11'-0"
W.
M.
HEATER ROOM
ENTRANCE
HIGH WINDOWS
STORAGE 9'-0" x 13'-0"
UP
0
10
20
30



Rendering by Leavitt

THE COMMUNITY CENTER FOR HICKORY, N. C.

Antonin Raymond and L. L. Rado, Architects

F. Ellwood Allen Organization, Park and Recreation Planners

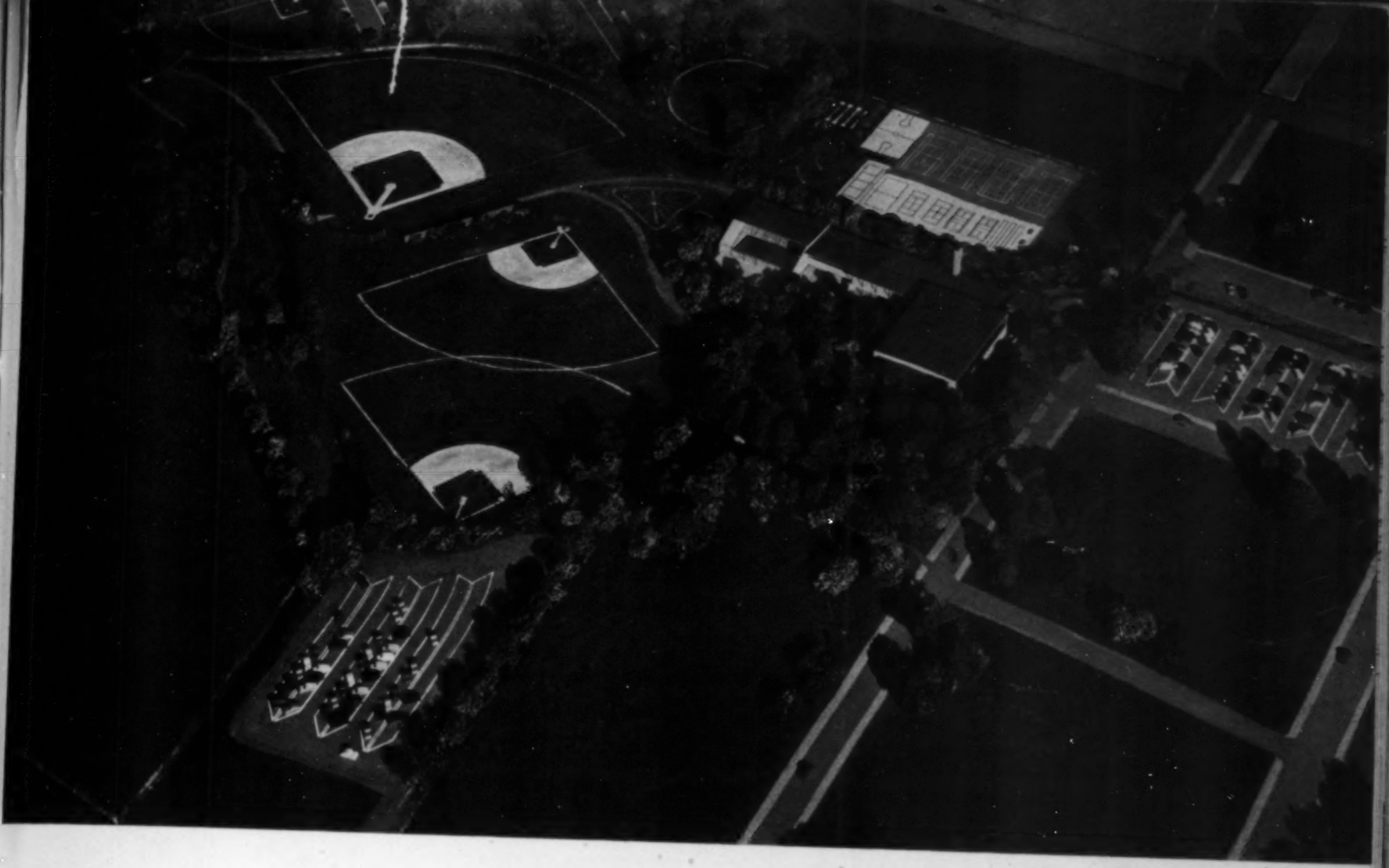
A TOTAL lack of central community or recreational facilities in this Southern manufacturing town of 19,000 persons, and a corresponding public interest in a center designed to supply these elements, formed the basis for a successful drive for funds. A local manufacturer's offer to match, dollar for dollar, whatever the town could raise brought the final total up to about $800,000.

A long-range study of the community and its environs was made which indicated its potential future population and the center has been planned to meet the future as well as present, demands upon its facilities. A 20-acre site near the center of town was purchased, within walking distance of most residents.

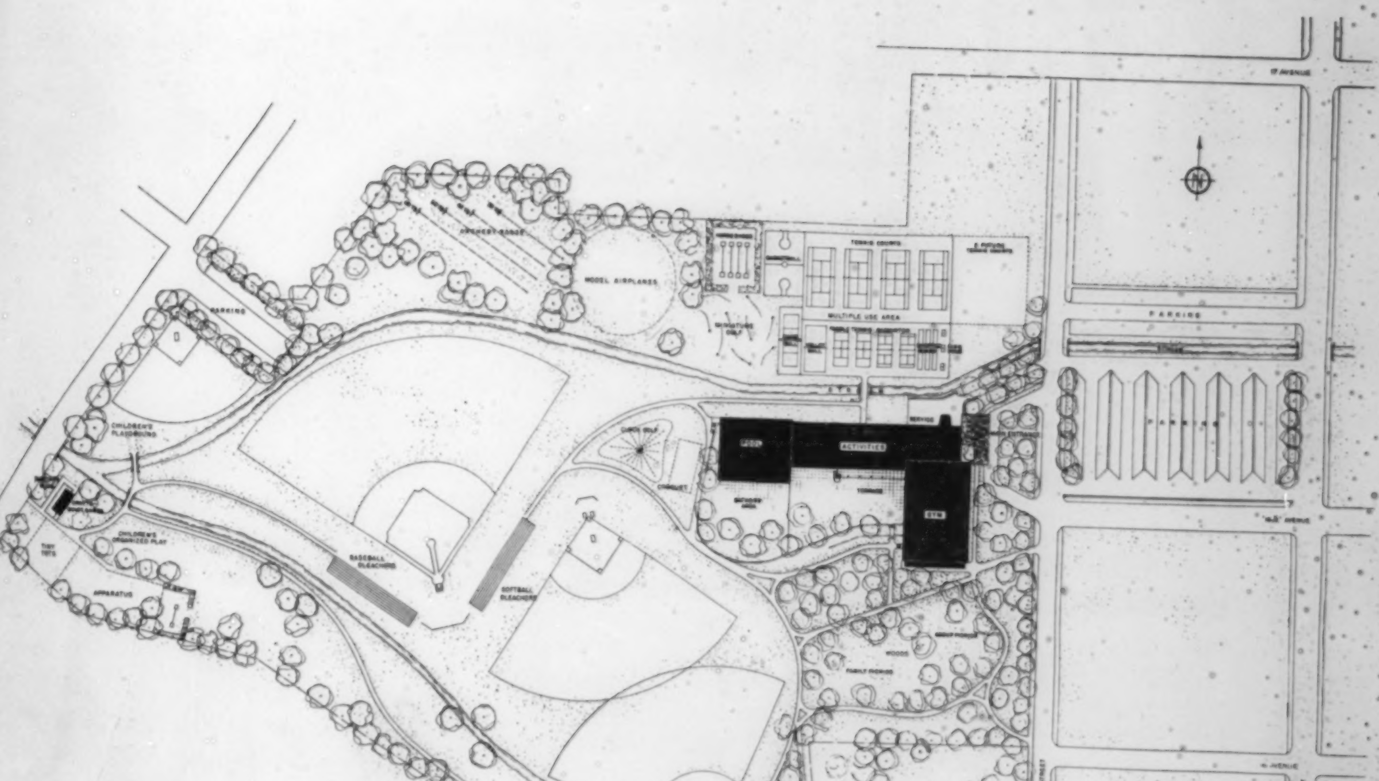
The ample size of the property made possible the development of an outdoor area which, as shown on the plot plan and model photograph on the facing page, matches the indoor facilities with provision for all types of outdoor recreation. The game courts for volley-ball, paddle tennis, shuffle-board, table tennis and badminton will be hard-surfaced so that when the area is cleared of game equipment it may be used for outdoor dances, roller skating or other events — an application of the multiple use principle to outdoor facilities.

The cost of maintaining this extensive plant in a relatively small community was given careful consideration. The objective decided upon has as its goal the retaining of the non-commercial, community character of the center, while reducing to the greatest possible extent the burden on the community of maintenance costs. Thus, as in other successful centers, it is planned that those facilities which will involve heavy construction or operational costs must produce income; but there will be many units and facilities free for general use, and even the income-producing facilities will be available to children at lesser rates, or, as in the case of the pool, will have certain free periods for children's use.

The community center is sponsored by the Hickory Community Foundation and the Hickory Recreation Commission.

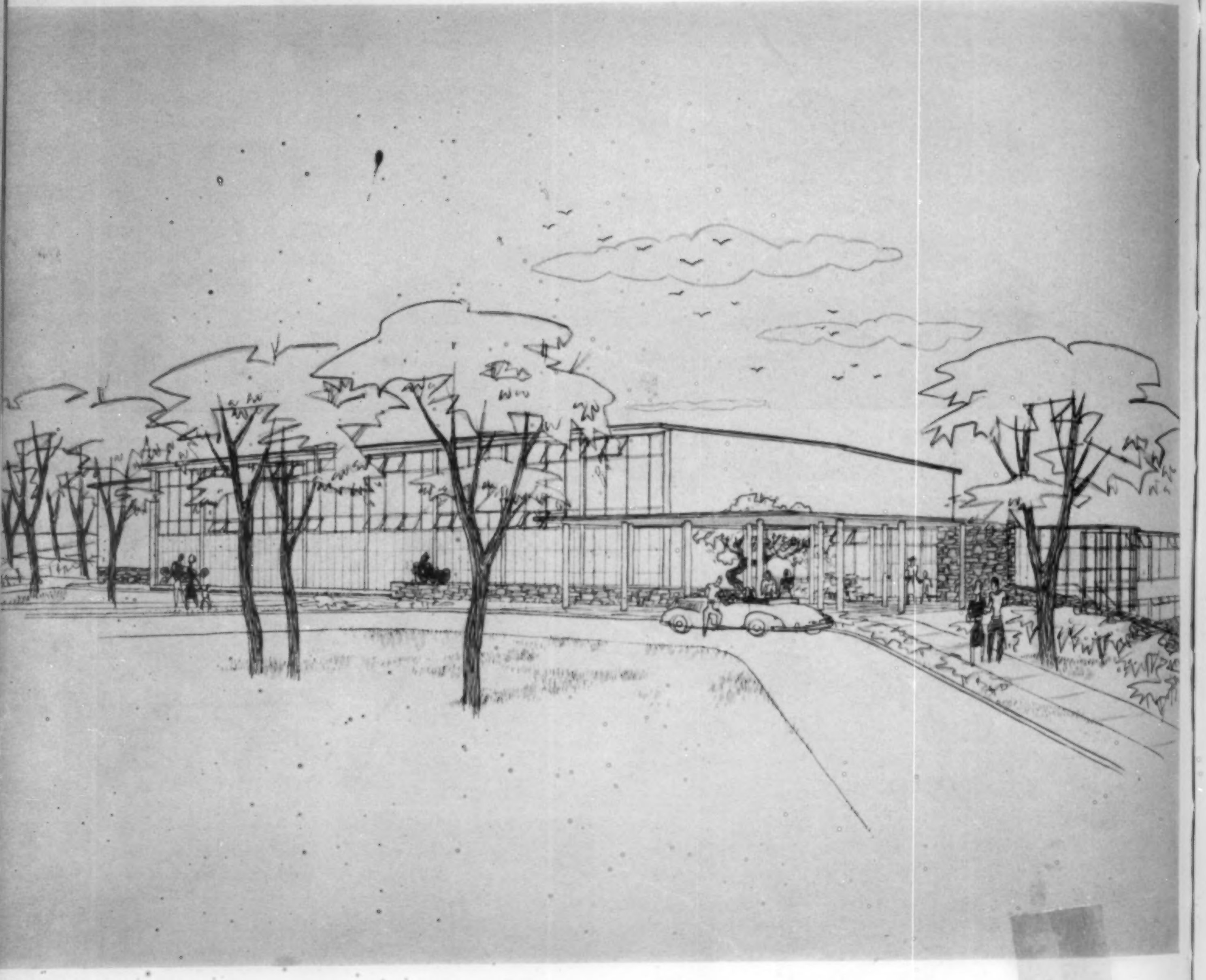


Louis Checkman Photo

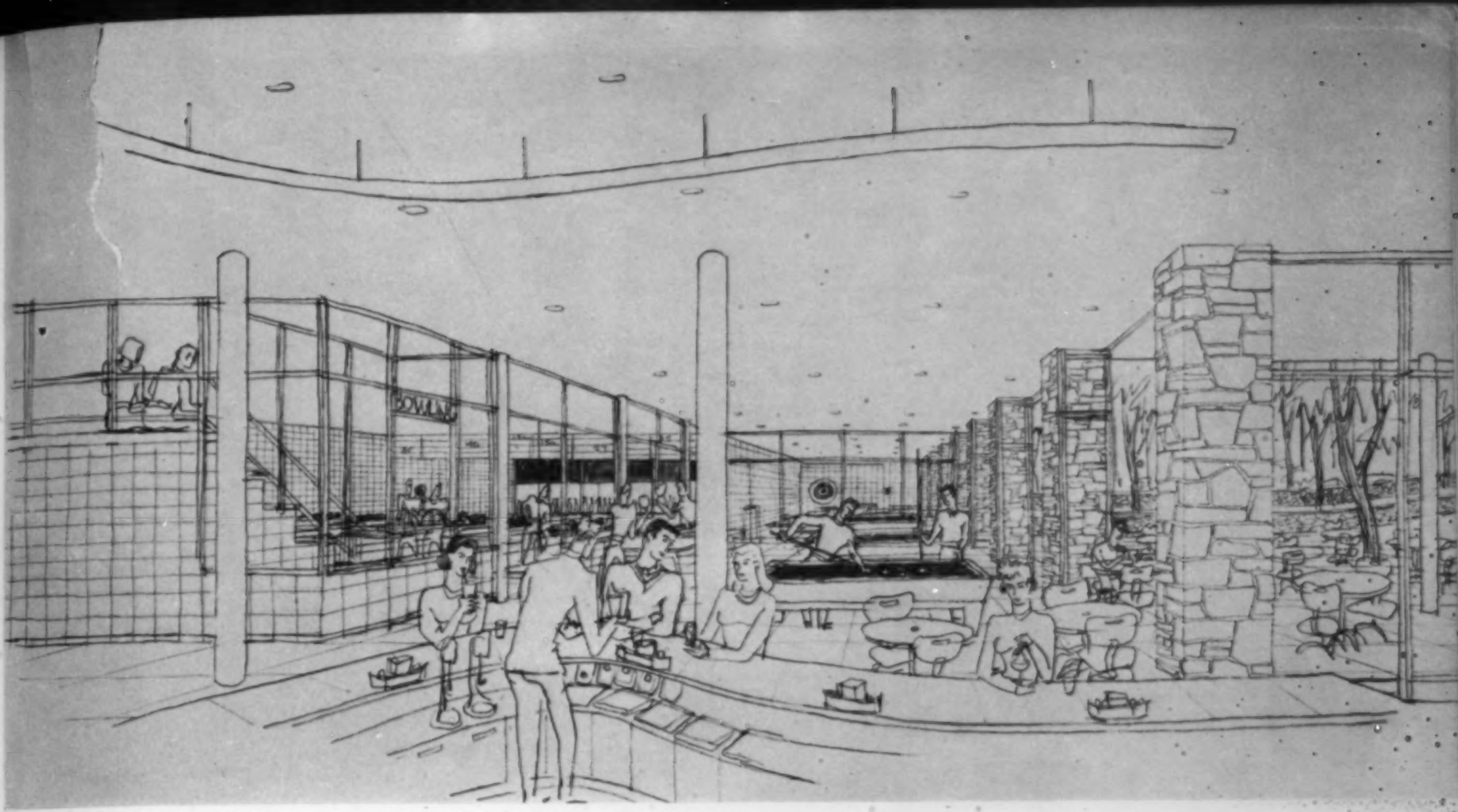


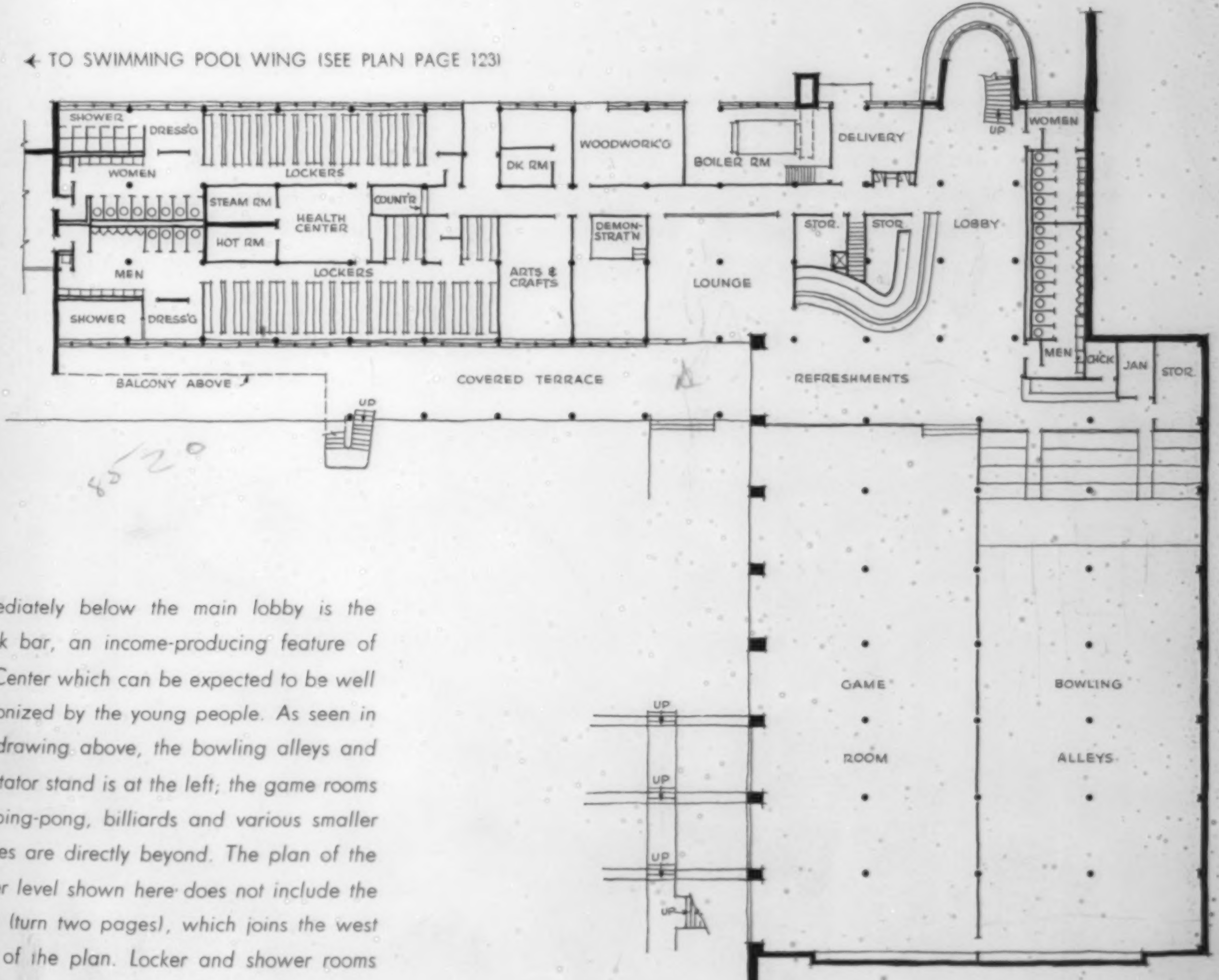
17 AVENUE
ARCHERY RANGE
MODEL AIRPLANES
TENNIS COURTS
2 FUTURE TENNIS COURTS
MULTIPLE USE AREA
MINIATURE GOLF
PARKING
CHILDREN'S PLAYGROUND
CHILDREN'S ORGANIZED PLAY
TINY TOTS
APPARATUS
BASEBALL BLEACHERS
SOFTBALL BLEACHERS
CROQUET
SERVICE
POOL
ACTIVITIES
TERRACE
GYM
WOODS
FAMILY PICNICS
SOFTBALL
AUXILIARY PARKING
PARKING
AVENUE
STREET
N

Renderings by Leavitt

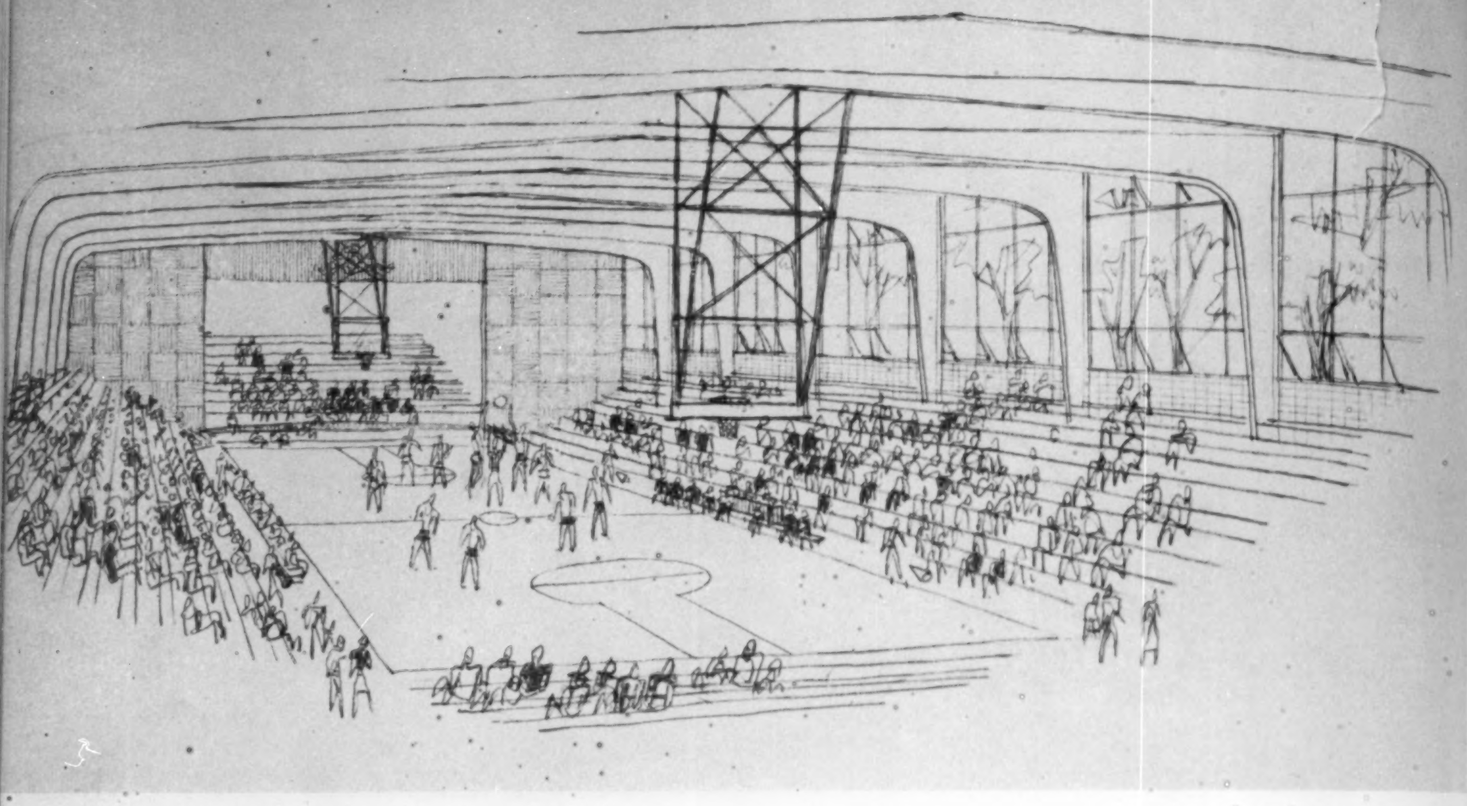


In the design of the Hickory Community Center, architects Raymond and Rado took particular care to suppress any suggestion of institutionalism and to keep the character of the building warm, welcoming, human in scale, intimate and relaxing. The approach to the main entrance, shown in the drawing above, despite the large mass of the gymnasium, has somewhat the hospitable atmosphere of a private club, not at all the forbidding monumentality of so many "public" buildings. This aspect of the design could be a deciding factor in the popularity, and therefore the success, of the Center

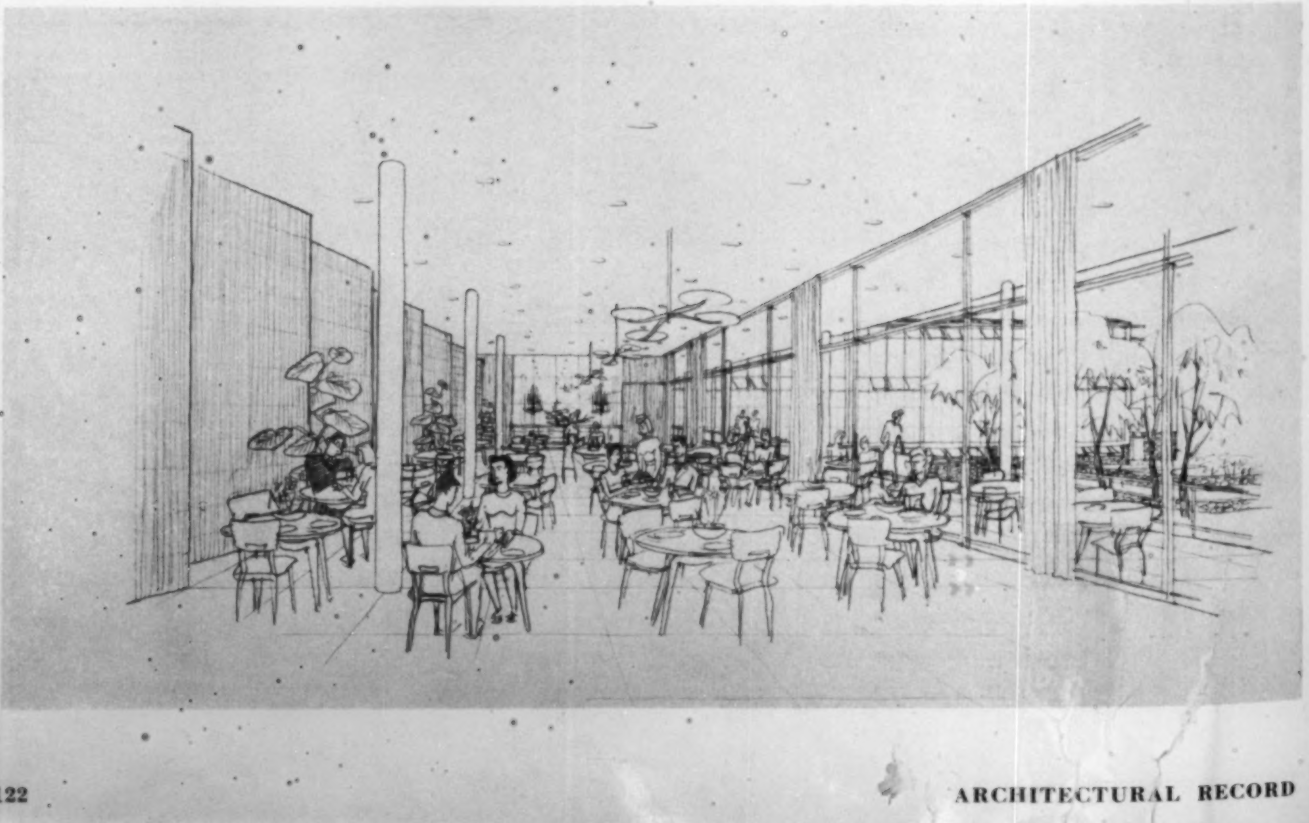


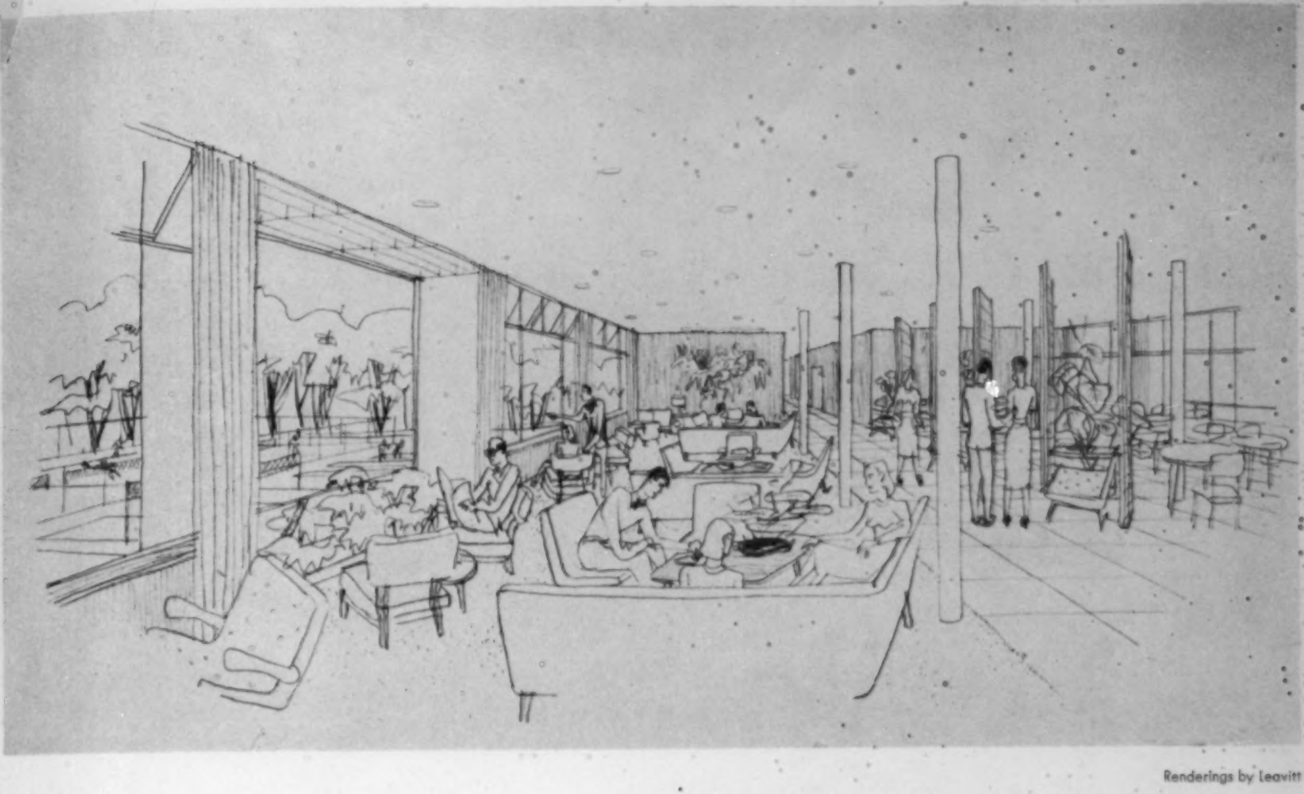

TO SWIMMING POOL WING (SEE PLAN PAGE 123)
SHOWER
DRESS'G
WOMEN
LOCKERS
STEAM RM
HEALTH CENTER
COUNT'R
HOT RM
MEN
LOCKERS
SHOWER
DRESS'G
DK RM
WOODWORK'G
ARTS & CRAFTS
DEMON-STRAT'N
BOILER RM
DELIVERY
STOR.
STOR.
LOUNGE
LOBBY
UP
WOMEN
MEN
CHCK
JAN
STOR.
BALCONY ABOVE
COVERED TERRACE
REFRESHMENTS
UP
85 20
GAME ROOM
BOWLING ALLEYS
UP
UP
UP
UP
0
25
50
75

Immediately below the main lobby is the snack bar, an income-producing feature of the Center which can be expected to be well patronized by the young people. As seen in the drawing above, the bowling alleys and spectator stand is at the left; the game rooms for ping-pong, billiards and various smaller games are directly beyond. The plan of the lower level shown here does not include the pool (turn two pages), which joins the west end of the plan. Locker and shower rooms serve the swimmers and the participants in outdoor activities, with a small stairway behind the snack bar giving access to the gym

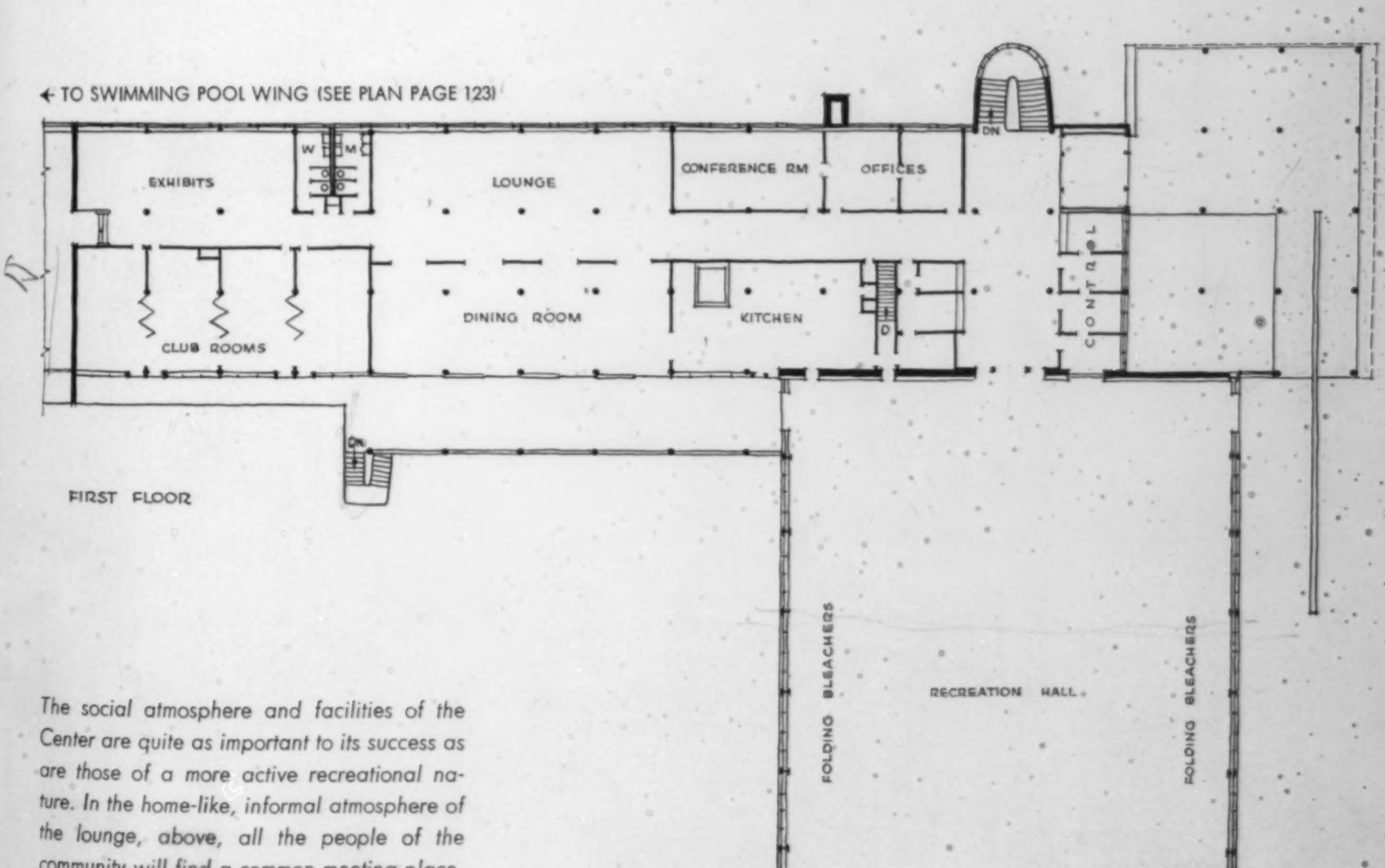


The recreation hall, off the main lobby, has ample playing space for a regulation basket-ball court, with folding seats affording a total spectator capacity in excess of 1800. The hall is adaptable to a variety of other games and functions; as seen in the plan at right, the kitchen is conveniently adjacent for the serving of large banquets. The dining room, shown below, has a normal seating capacity of 100, and opens on a terrace balcony to the south where an additional 100 may be served

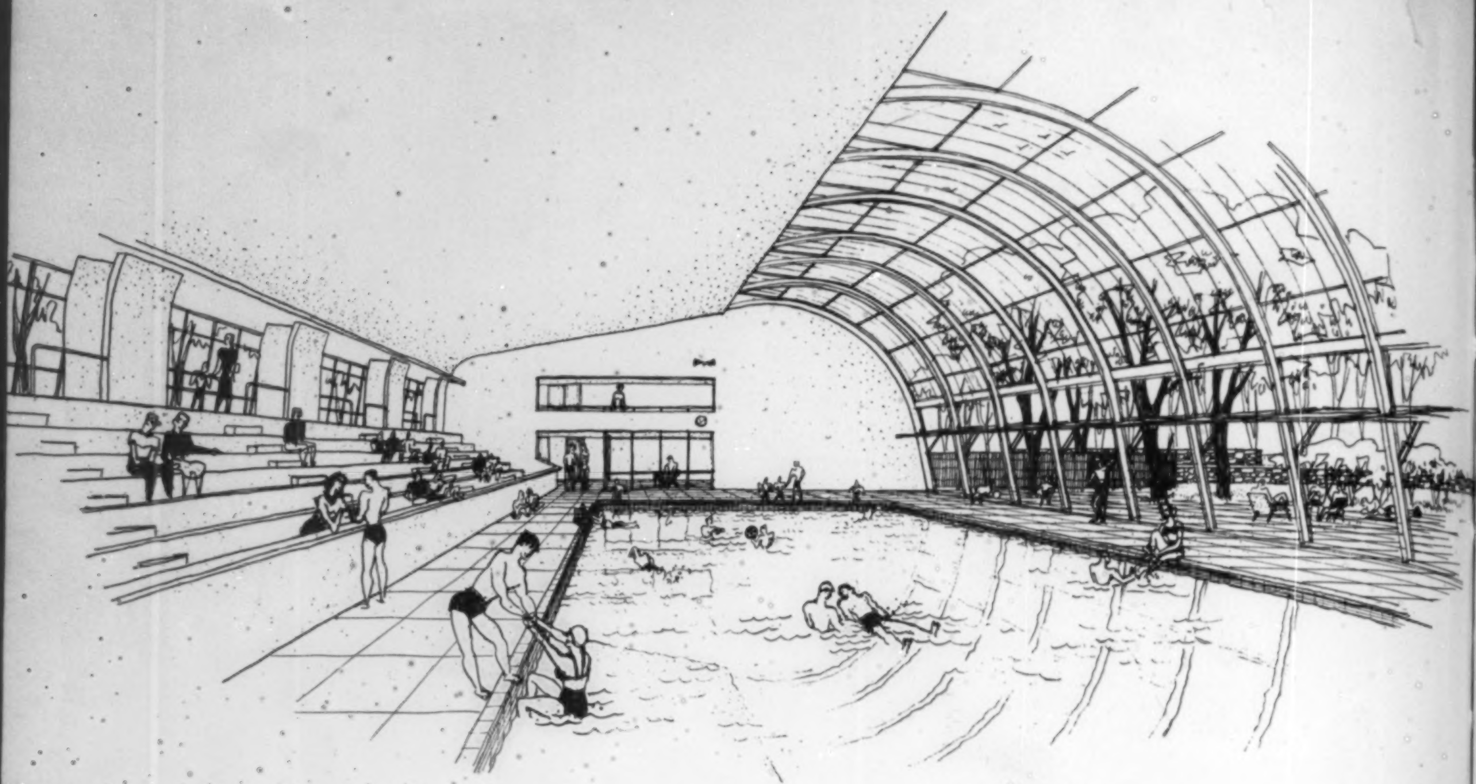




Renderings by Leavitt

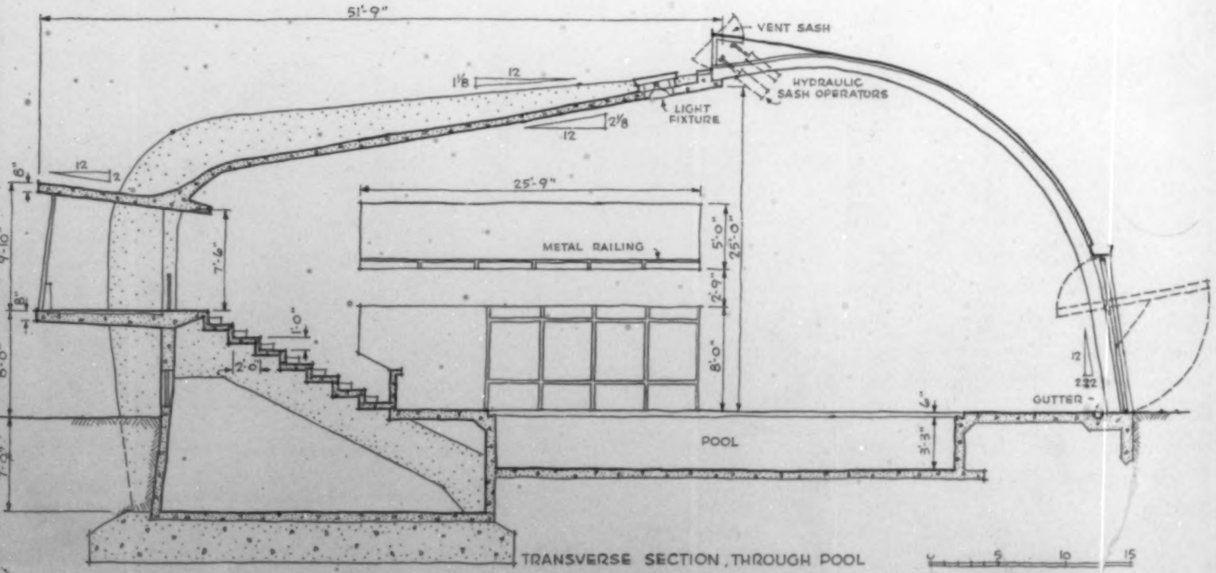

← TO SWIMMING POOL WING (SEE PLAN PAGE 123)
EXHIBITS
W
M
LOUNGE
CONFERENCE RM
OFFICES
DN
CLUB ROOMS
DINING ROOM
KITCHEN
CONTROL
DN
FIRST FLOOR
FOLDING BLEACHERS
RECREATION HALL
FOLDING BLEACHERS
DN
FOLDING BLEACHERS

The social atmosphere and facilities of the Center are quite as important to its success as are those of a more active recreational nature. In the home-like, informal atmosphere of the lounge, above, all the people of the community will find a common meeting place. Club rooms, exhibition rooms, amphitheater-type demonstration room, rooms for crafts and photography (on lower level floor plan), afford other opportunities for non-athletic participation



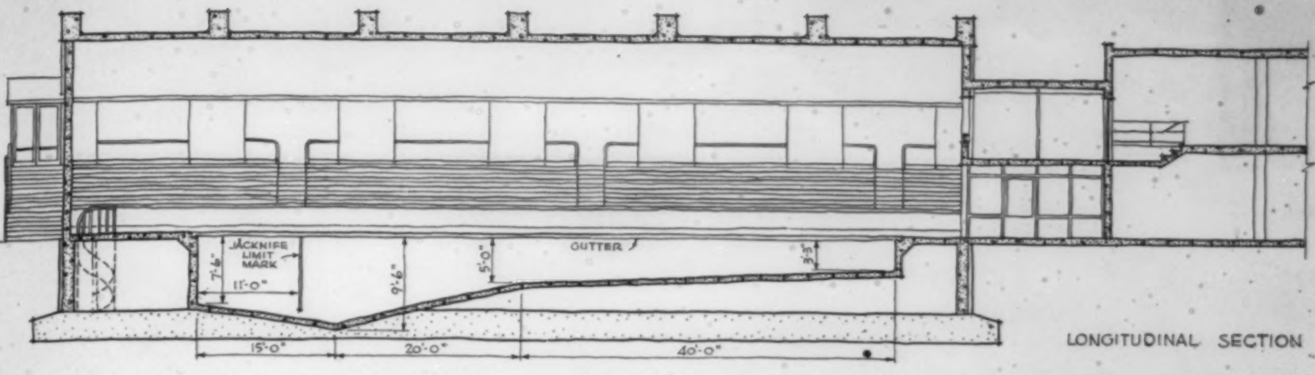
Rendering by Leavitt

Undeniably an expensive feature of any recreation center, a swimming pool is also one of the almost indispensable items where no similar facility is available to the community. Fortunately, it is also a facility which can produce substantial income through admission tickets to swimmers, and to spectators at aquatic events. The Hickory Community Center pool is the regulation 35 ft. wide by 75 ft. long, and provides a seating capacity of 400 in the gallery. A feature of the pool is the pivoted lower tier of glass which makes it simple, in warm weather, to open the south side of the building fronting on a broad, enclosed terrace for sunbathers. The pool has in effect all the features and advantages of an outdoor pool in summer and of a bright, warm indoor pool in inclement weather

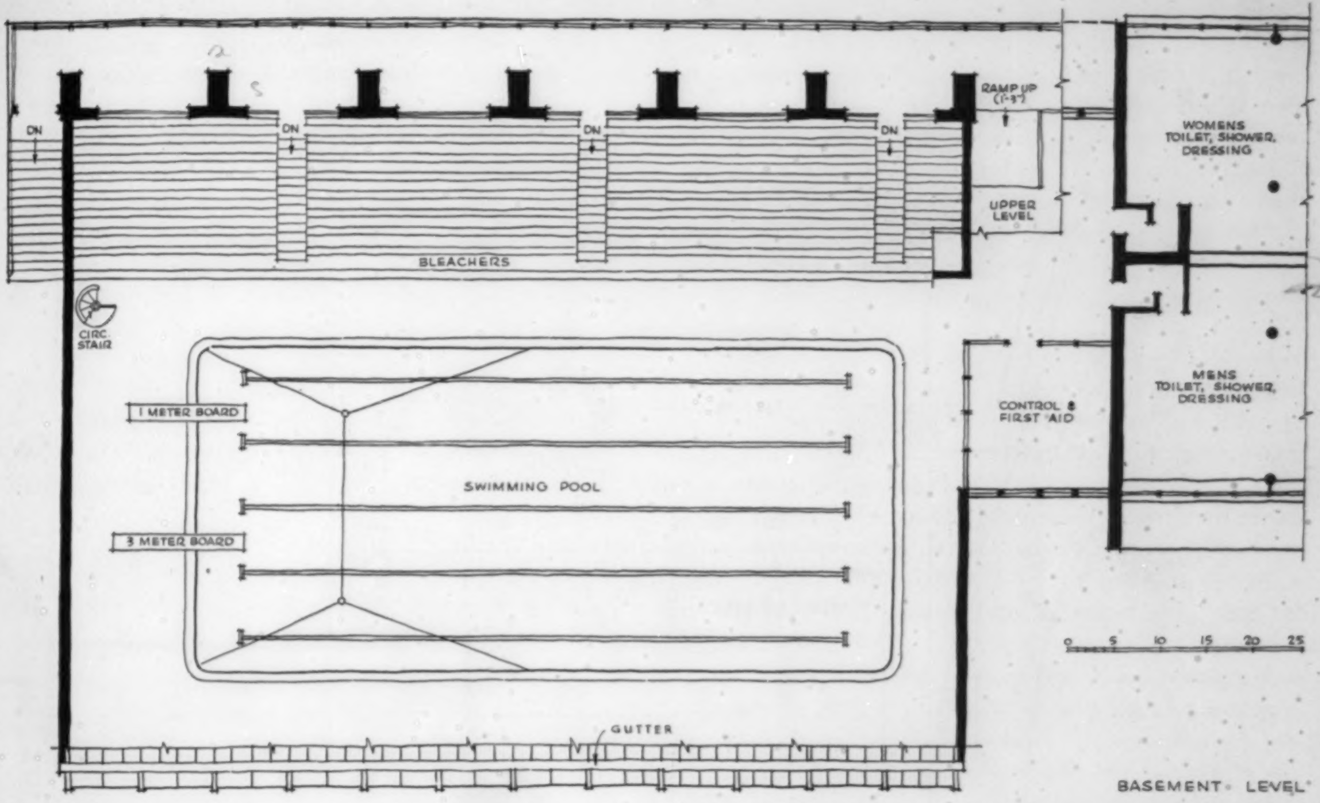


51'-9"
VENT SASH
1⅛
12
HYDRAULIC SASH OPERATORS
LIGHT FIXTURE
2⅛
12
12
2
6"
25'-9"
9'-10"
7'-6"
METAL RAILING
5'-0"
25'-0"
2'-9"
8"
1'-0"
2'-0"
8'-0"
8'-0"
12
2.22
GUTTER
6"
POOL
3'-3"
7'-0"
0
5
10
15

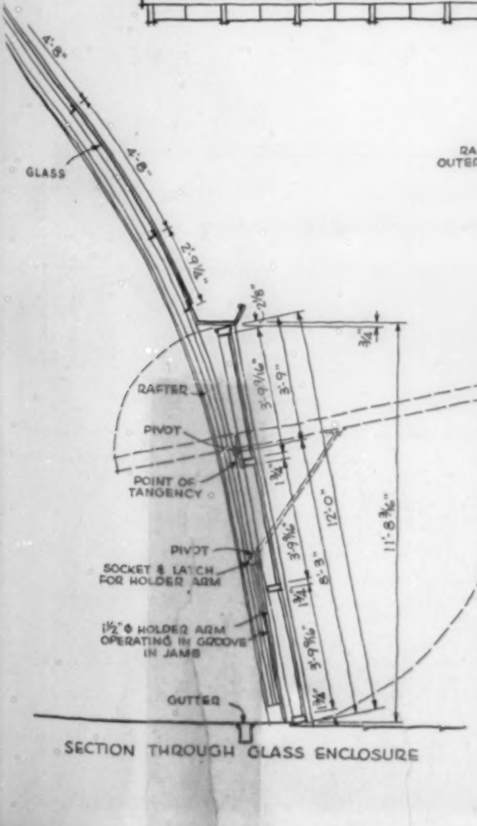
TRANSVERSE SECTION, THROUGH POOL


JACKNIFE LIMIT MARK
7'-6"
11'-0"
9'-6"
5'-0"
GUTTER
3'-5"
15'-0"
20'-0"
40'-0"

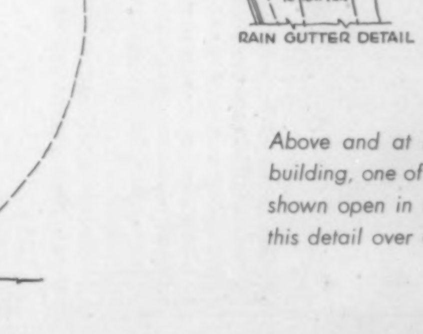
LONGITUDINAL SECTION


DN
DN
DN
DN
RAMP UP (1'-3")
UPPER LEVEL
WOMENS TOILET, SHOWER, DRESSING
BLEACHERS
CIRC. STAIR
1 METER BOARD
SWIMMING POOL
3 METER BOARD
CONTROL & FIRST AID
MENS TOILET, SHOWER, DRESSING
0 5 10 15 20 25
GUTTER

BASEMENT LEVEL


4'-8"
GLASS
4'-8"
2'-9 1/16"
2 7/8"
3/4"
RAFTER
3'-9 1/16"
3'-9"
PIVOT
POINT OF TANGENCY
1 3/4"
3'-9 1/16"
12'-0"
11'-8 7/8"
8'-3"
PIVOT
SOCKET & LATCH FOR HOLDER ARM
1 3/4"
1 1/2" Φ HOLDER ARM OPERATING IN GROOVE IN JAMB
3'-9 1/16"
1 3/4"
GUTTER

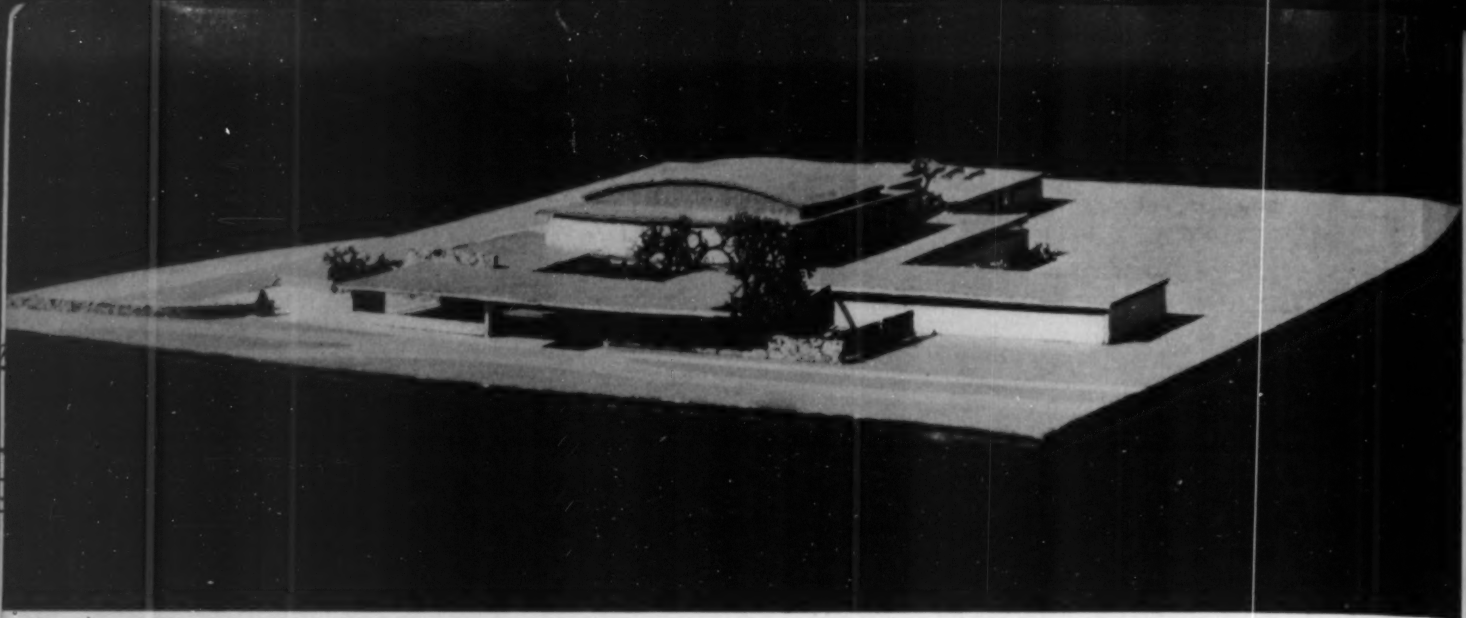
SECTION THROUGH GLASS ENCLOSURE

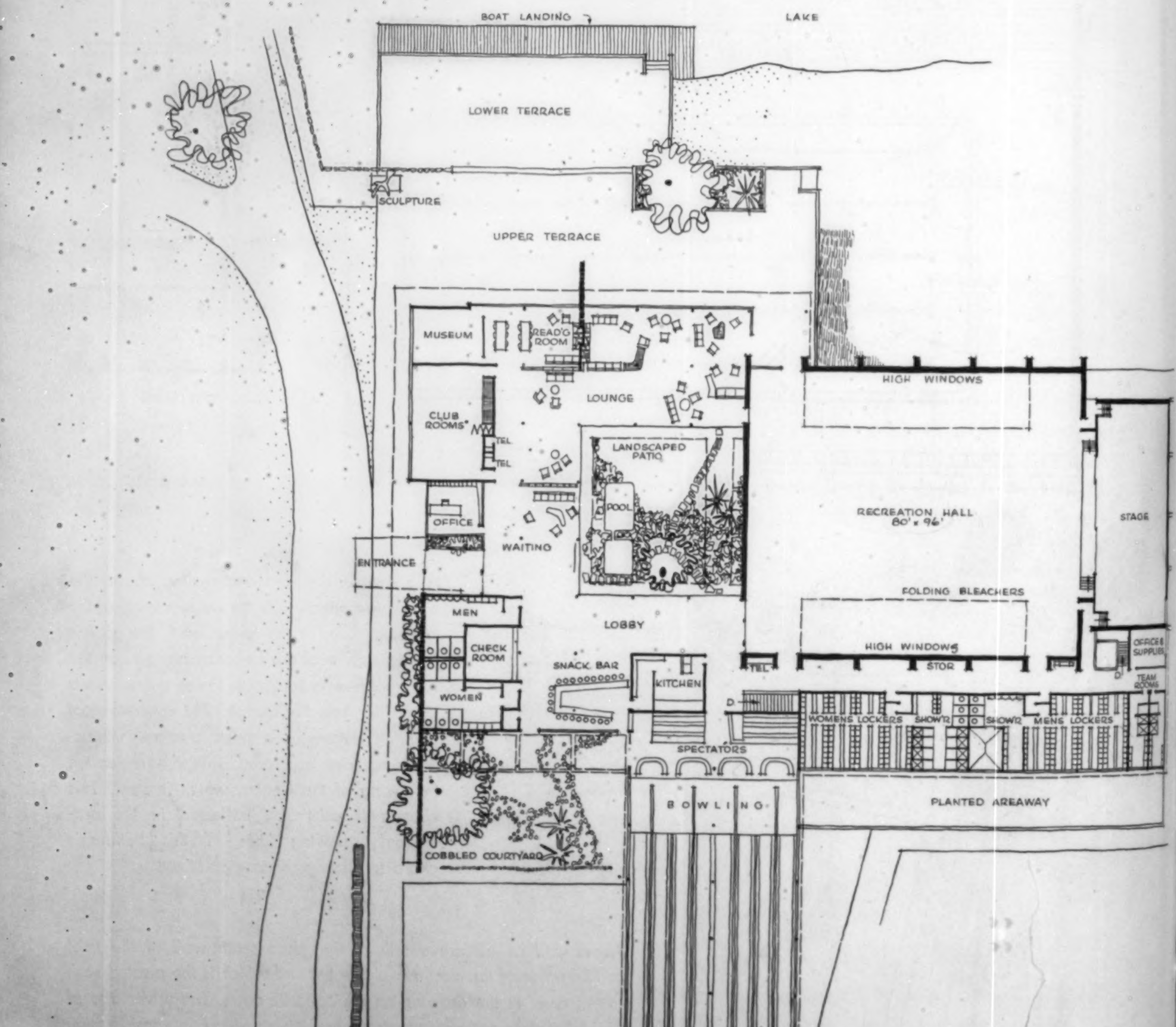

RAFTER OUTER FLANGE
RAFTER CAP
PURLIN
3/16" ALUMINUM GUTTER
1'-3"
7"
1/4" ALUM BRACKETS
DOOR
ST. CLIP (CONTINUOUS)
ALUM. FILLER-BUCK SCRIBED TO RAFTER

RAIN GUTTER DETAIL

As shown in the plan and section above, the pool unit connects with the western wing of the main building; at the lower level, the pool is conveniently near the locker rooms, and on the first floor level is accessible to non-swimmers via a corridor from the lounge. The concrete pool building represents a basic change in structural material compared with the recreation hall wing of the Center, which is steel. This change is admirably reflected in the dramatically flowing lines of this building's characteristically concrete architecture

Above and at left are details of the glass south wall of the pool building, one of the most notable features of which is the pivoted sash shown open in the drawing on the opposite page. The advantage of this detail over conventional doors or sliding sash merits consideration





BOAT LANDING
LAKE
LOWER TERRACE
SCULPTURE
UPPER TERRACE
MUSEUM
READ'G ROOM
LOUNGE
CLUB ROOMS
TEL
TEL
LANDSCAPED PATIO
POOL
OFFICE
WAITING
ENTRANCE
MEN
CHECK ROOM
WOMEN
LOBBY
SNACK BAR
KITCHEN
D
TEL
HIGH WINDOWS
RECREATION HALL
80' x 96'
FOLDING BLEACHERS
HIGH WINDOWS
STOR
STAGE
OFFICE & SUPPLIES
D
TEAM ROOMS
WOMENS LOCKERS
SHOW'R
SHOW'R
MENS LOCKERS
SPECTATORS
BOWLING
PLANTED AREAWAY
COBBLED COURTYARD
0
10
20
30
40
50
100

A RECREATION CENTER AT BLOOMINGTON, ILL.

Antonin Raymond and L. L. Rado, Architects

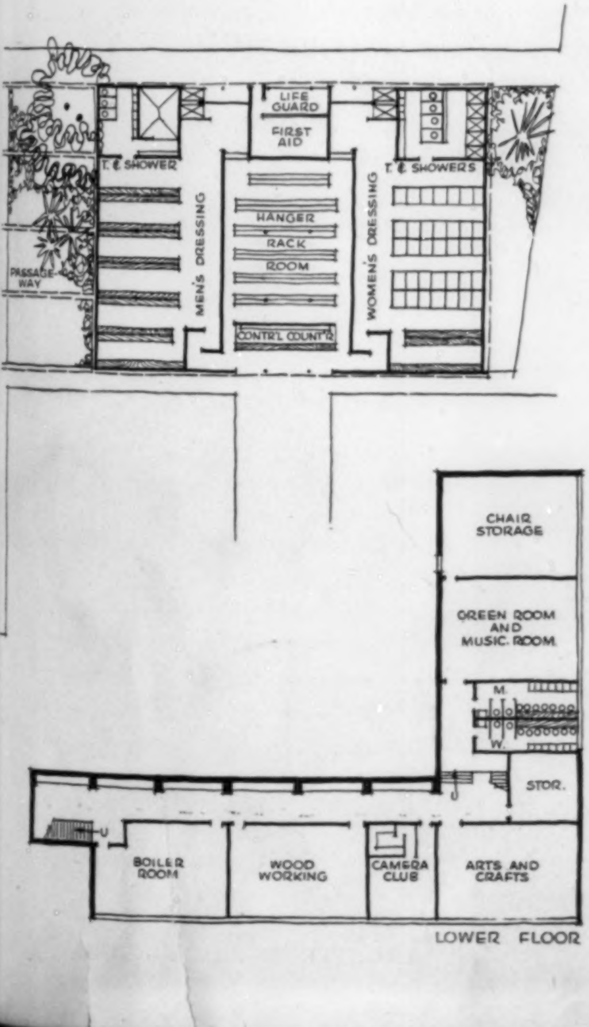
F. Ellwood Allen Organization, Park and Recreation Planners

This Center, unlike the one shown on the previous eight pages, was designed primarily to serve the employees of the State Farm Insurance Companies, and the question of raising public funds did not arise. Although Bloomington is a good-sized university town, attractive recreational facilities are conspicuously deficient for the great majority of the companies' employees, many of them young women fresh from farms and villages. This dearth of facilities serving leisure interests is a principal cause of a serious employee turnover.

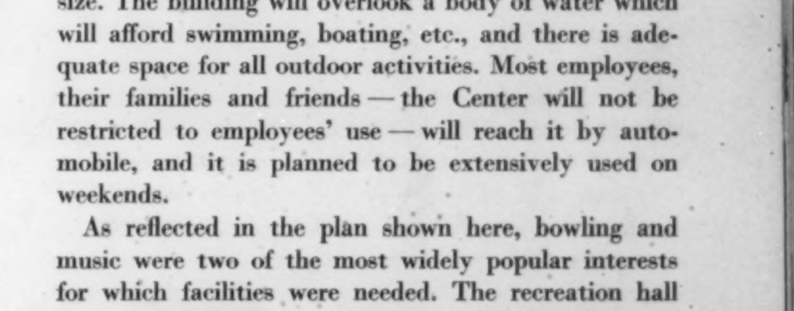
To meet this situation, the Companies asked the employee organization to make recommendations as to the kind of facilities that would provide for the major recreational interests of the employees. These recommendations, together with a searching, independent study by the planners, formed the basis for the design and determined what facilities would be included. Special attention is drawn to this phase of the pre-design research; the desires and preferences of the men, women, and families who were to use the Center were sought and followed. The more paternalistic approach, in which the officers of the Companies which are to pay the bill might have dictated what should go into it, would have been of much less value in securing the ultimate objectives of the project.

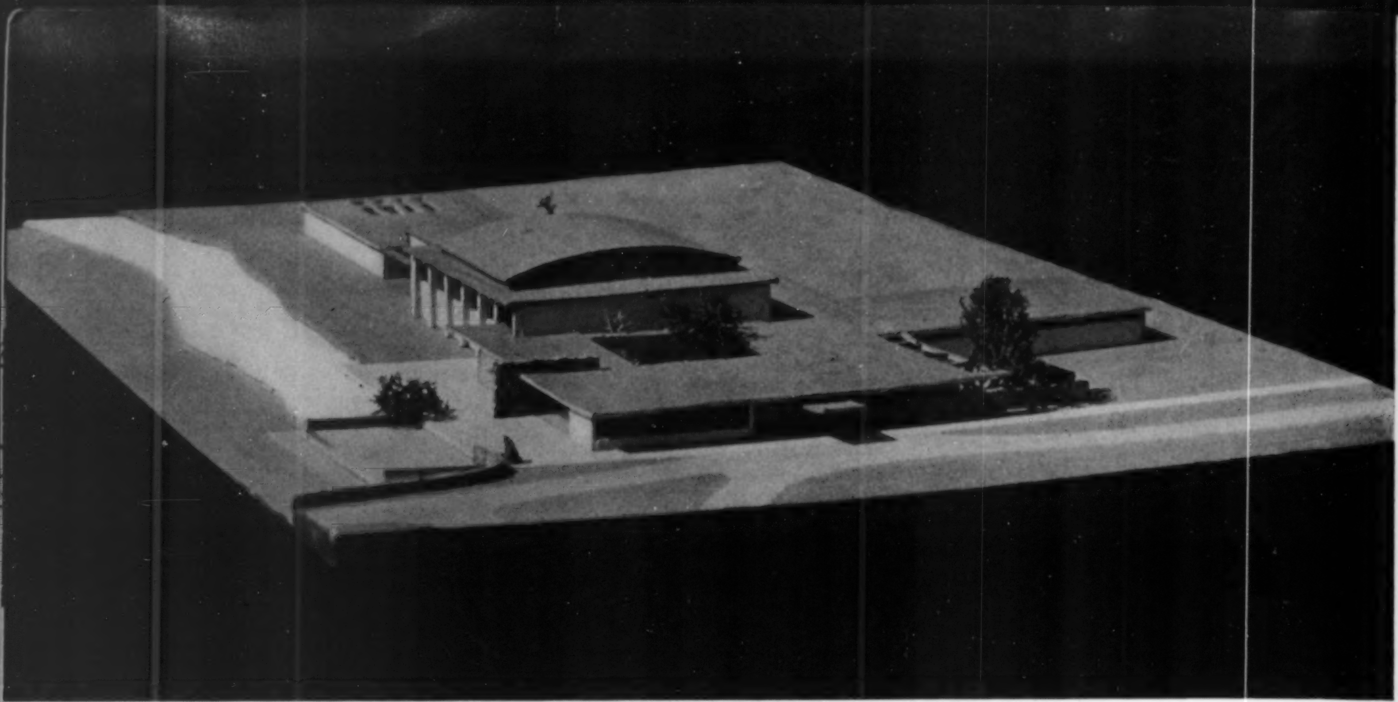
A property, some 33 acres in extent, was purchased at the edge of town, since a central location was in this case of less importance than an attractive site of ample size. The building will overlook a body of water which will afford swimming, boating, etc., and there is adequate space for all outdoor activities. Most employees, their families and friends — the Center will not be restricted to employees' use — will reach it by automobile, and it is planned to be extensively used on weekends.

As reflected in the plan shown here, bowling and music were two of the most widely popular interests for which facilities were needed. The recreation hall has a stage suitable for concert use. Separate from the main building is an annex for swimmers, providing dressing-rooms, showers, drying facilities, etc. For other views of the model, see the following two pages.

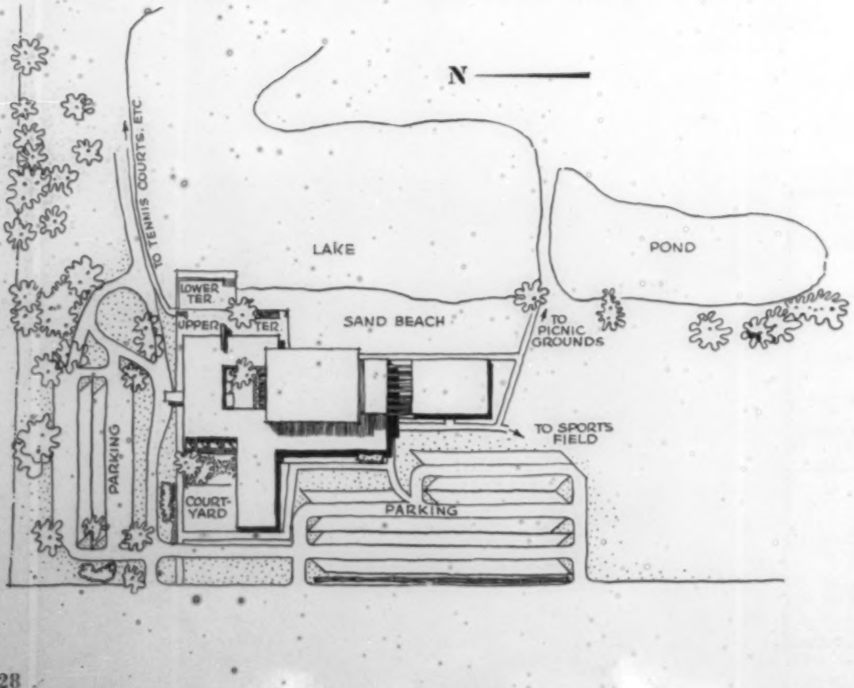


LOWER FLOOR

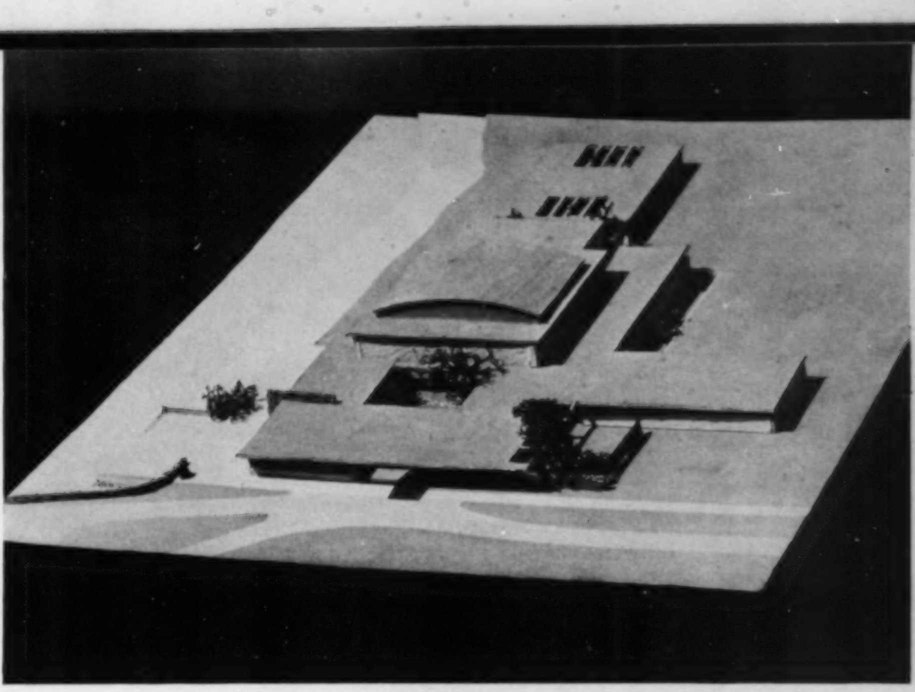


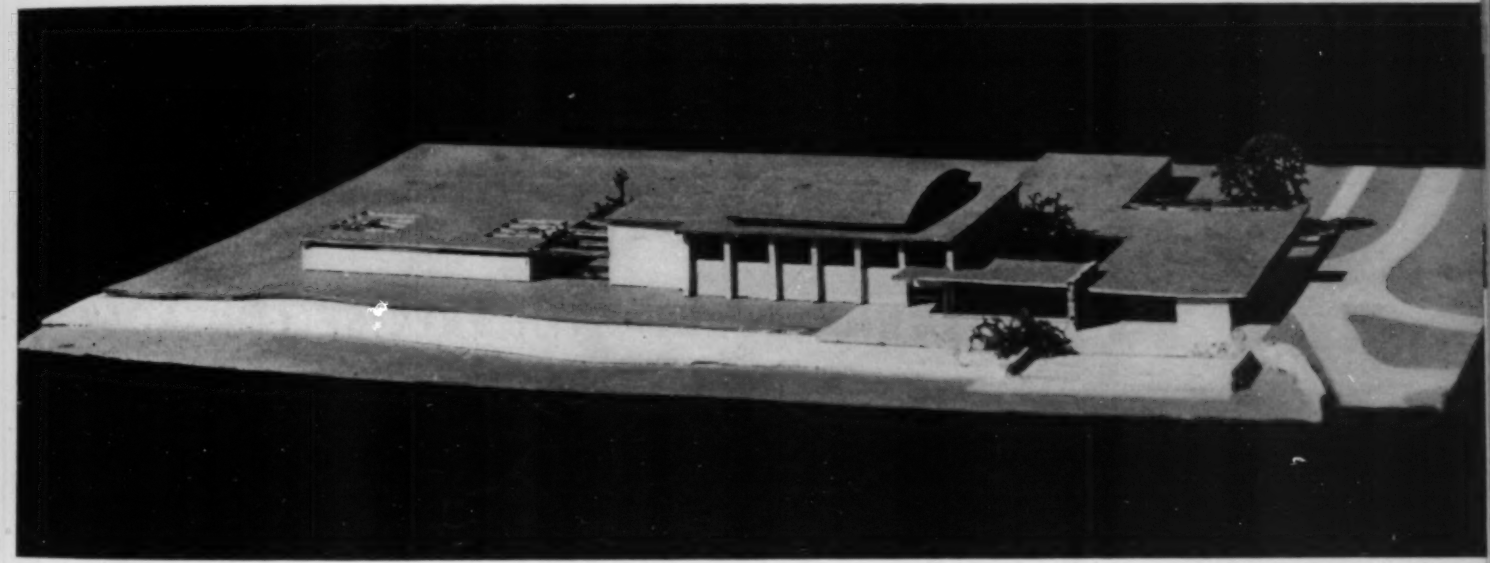


The photograph above shows a view of the Center as it might be seen from the hill north of the lake, looking southwest toward the entrance front and the lakeside. Only a part of the extensive property is shown in the plot plan below, but certain of the more important features are highlighted. The spacious terraces, extending to the water's edge and ending in a boat landing, take full advantage of the lakeside site, while a gently rolling topography lends itself to an interesting layout of outdoor facilities. Note the emphasis on adequate parking, with provision in the two lots for a total of 203 cars, 70 cars being accommodated in the area north of the entrance and 133 in the main parking area west of the building. The latter parking space is nearest to the picnic grounds and sports field to the south. It is convenient also to the main building and to the bathing facilities

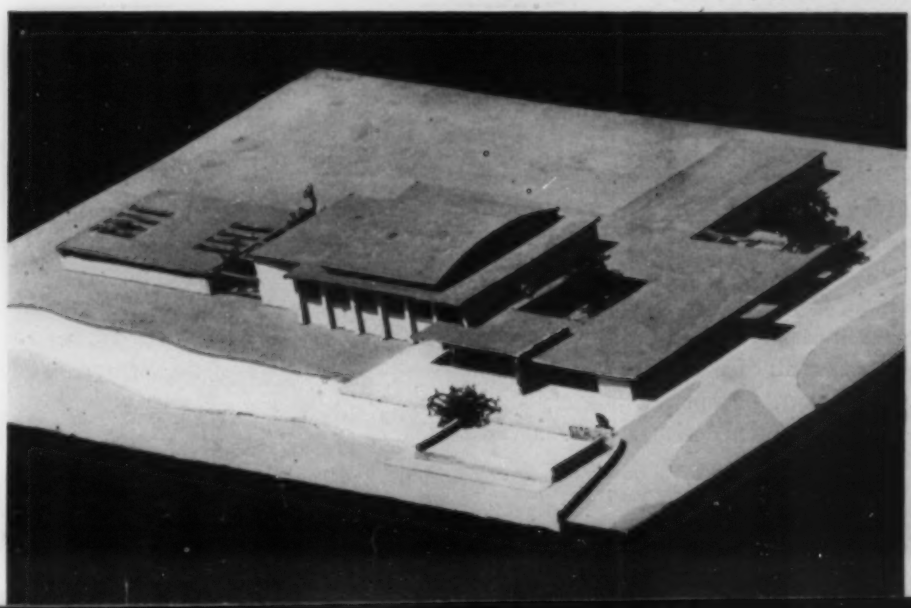

N
TO TENNIS COURTS, ETC
LAKE
POND
LOWER TER.
UPPER TER.
SAND BEACH
TO PICNIC GROUNDS
TO SPORTS FIELD
PARKING
COURT-YARD
PARKING

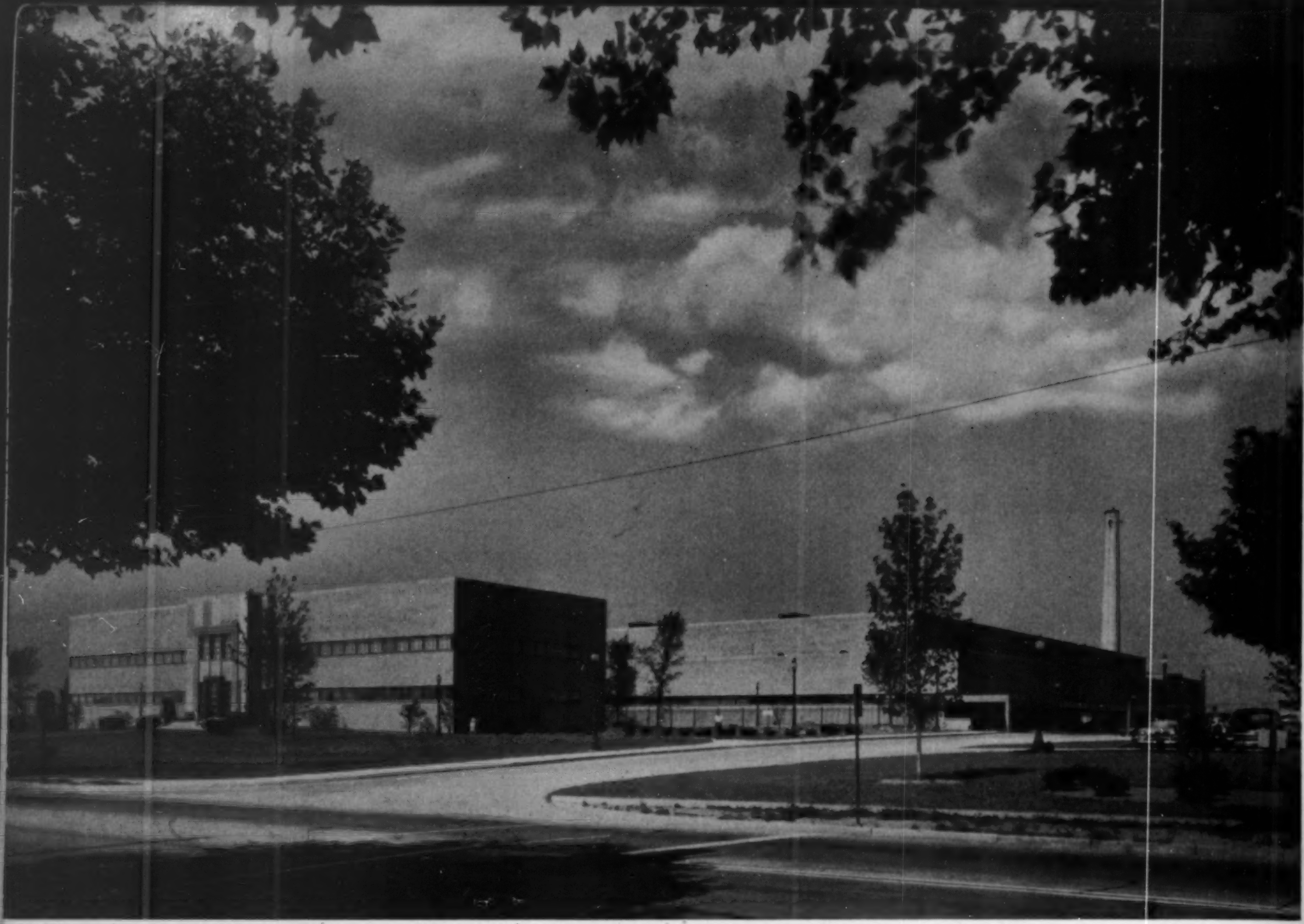
At right, looking toward the main entrance, this view shows the entrance leading to the lobby, the bowling alley wing at right, the lounge and terraces at the left, the recreation hall in the center, and the bath house beyond. Note the open garden patio which serves as an outdoor lounge and reading room





In the photographs above and at right there is clear indication that again the architects have worked towards the creation of an environment which would be as friendly and intimate as possible in a project of such considerable size





ELECTRONICS PLANT WITH PRECISE CONTROLS

Western Electric Company's Allentown, Pa. Plant Consolidates Advances in Atmosphere Control, Flexibility and Lighting

The Austin Company, Designers and Builders

IN ELECTRONIC TUBE manufacture, where a bit of dust or a touch of perspiration would spoil the work, the plant designer must not merely accommodate a manufacturing operation, but also contribute to it. The concept of a "controlled conditions" factory is not new (Austin engineers say they built the first of this kind 18 years ago), but the new Allentown plant for Western Electric does represent a consolidation of engineering advances toward the most precise controls. No "house of magic," it does embody the combined experience of Western Electric's plant engineers with that of the Austin Company to gain not only this control but also the utmost in flexibility for an amazing variety of plant processes, all of which are subject to continual change.

The plant occupies a 50-acre landscaped site in a country location, with recreation areas, parking lot, and rail siding. Main buildings include the administration building, manufacturing building, powerhouse and gas generation building.

Flexibility. Manufacture is housed in a two-story, 375 by 450 ft. structure, with a full ground floor beneath the main floor. Clear spans of 100 ft. provide four 325-ft. aisles in the main manufacturing area. Special process departments and employee facilities are arranged around the perimeter, in a 25-ft. lean-to section where the wider range of air conditioning requirements can be met.

Within these manufacturing aisles one of the major design problems was the wiring and service lines to reach some 5000 machine locations, any of which might be changed at any time. This led to the use of a new-old idea adapted from mill construction, the "packed" wood

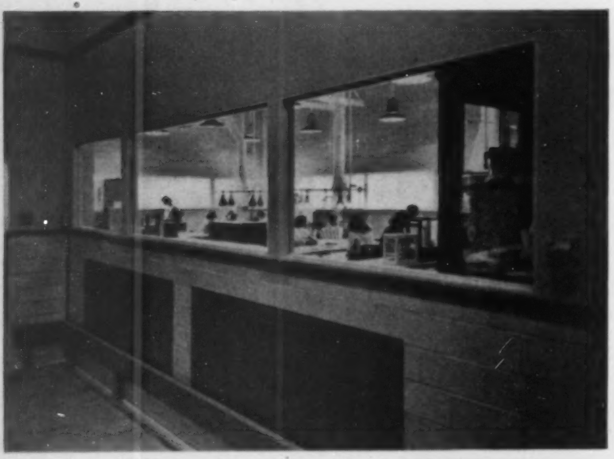
Main manufacturing building comprises a central manufacturing area 325 by 400 ft., with clear 100-ft. spans. Around the periphery is a 25-ft. lean-to section for special processes

Richard Averill Smith photos

Plant occupies a 50-acre site two miles east of Allentown, Pa. Blacktop parking area has space for 600 cars. Buildings in background are administration building, plant and power-house

Richard Averill Smith Photos

Second floor engineering offices in office building (top, left) have 75-ft. clear span. Manufacturing building has 100-ft. clear span, in four 325-ft. aisles (top, right). Below, smaller view shows sealing off of the cathode coating department in the lean-to section, because of explosion hazards — louvers are closed with sheet steel. Larger photo shows air conditioning ducts and exhaust louver to main room



floor. The floor consists of 3 by 6-in. timbers laid on edge, with a 1-in. strip maple flooring on top. These timbers, supported by steel beams, and spiked together with spikes reaching into the third timber, carry heavy floor loads but still permit easy connections to pipe lines. Wiring and service piping of a dozen kinds run in a maze of mains and branches just below the main floor, at the ceiling of the ground story. Connections can be dropped down vertically to any location on the lower floor, or run upward through the floor by the simple means of boring a hole.

The Building. Part of the job of atmosphere control is performed by the building itself. It was designed to seal off the interior and insulate it against solar heat. Heat of processes makes the problem of cooling far more serious than that of heating.

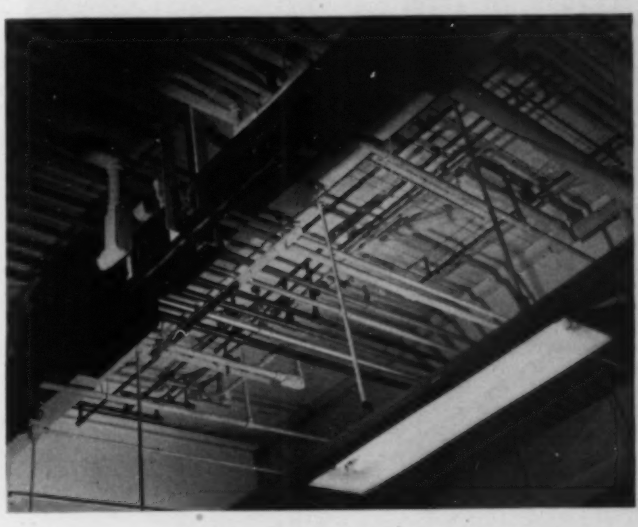
Walls are designed for a 12-hour lag in transmission of solar heat. They are 13½ in. thick — an 8½-in. outer brick wall, a vapor seal, 1-in. fiber glass insulation, another vapor seal, and 4 in. of glazed tile on the interior.

Windows too enter into the sealing. They are limited to a 30-in. vision strip, of two thicknesses of solar glass.

The roof is designed for a 4-hr. heat lag — a sheet of structural steel, 2 in. of fiber glass insulation, and 20-yr. bonded roofing.

Air Conditioning. To prevent relatively dust-laden outdoor air from seeping into the building through doorways, the air conditioning equipment maintains an

Manufacturing aisles on main floor have "packed" wood flooring, 3 by 6's laid on edge, with maple surfacing; this floor can be bored easily at any point for any one of a dozen or more types of wiring or service piping. The ground floor (right above) gets these same services from above, with vertical lines dropping down from the same distribution line (shown below) that serve the main floor just above



indoor pressure slightly higher than the outdoor pressure. And within some areas of the peripheral lean-to section pressure is kept greater or less than in adjacent areas. In the chemical treating rooms, for example, a lower pressure is maintained to prevent fume-laden exhaust from circulating to other areas. And a greater pressure is maintained in the cathode coating room, which has more rigid air purity requirements than other areas.

The amount of air needed to maintain a positive pressure relative to outdoors is indicated by a static pressure regulator, to guide the attendant in the monitor room. Outdoor temperature is automatically compared to indoor temperature by a wet and dry bulb differential controller. The instrument decides whether it is more economical to admit fresh air into the building or cool that already inside. While the temperature of air blown through the diffusers is normally controlled by an outdoor master thermostat, a manual control is provided to ease the load on the equipment in case of sudden weather changes.

All of the air conditioning equipment for the main floor is located in a huge mezzanine, which extends through the welded steel roof trusses over the central portion of the plant as one vast plenum chamber. Six identical units, evenly distributed, serve the general manufacturing area, while four similar units, located in the four corners of the mezzanine, meet the highly diverse needs of individual rooms around the perimeter. Four additional units have been located on the lower floor, which is served by an independent duct system.

All air for cooling this building and a nearby office building is chilled by water, which is cooled, at the rate of 3,720 gallons per minute, in the powerhouse. The installation is rated at 2,310 tons of ice per day. Air for heating is passed through steam coils in the air conditioning units.

Lighting. The wide range of lighting requirements is met by individual bench lamps and integral machine

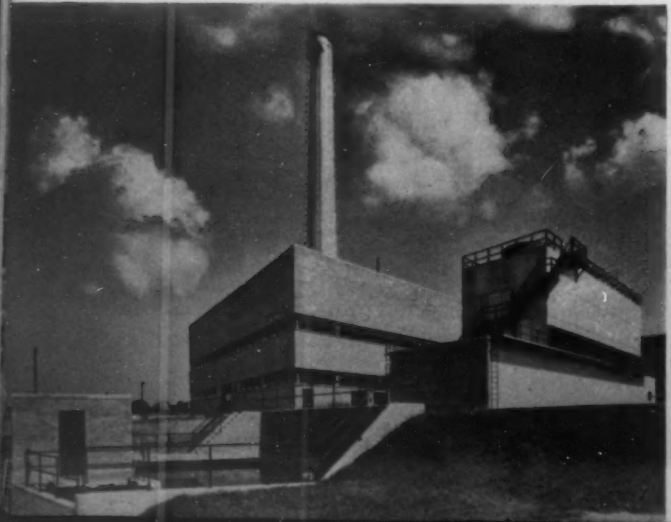
One of the four smaller air conditioning systems, on the mezzanine floor between the steel roof trusses. This is one of four that serve the special departments in the lean-to section. Six similar units, also in the truss mezzanine, serve main section

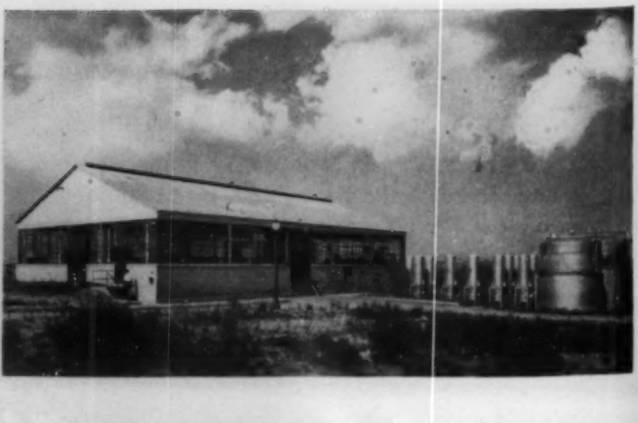
Cafeteria, above, occupies one corner of main manufacturing building, kitchen in lean-to section. Cafeteria has 11,000 sq. ft.

lighting, supplementing semi-continuous, recessed troffer fluorescent lighting, on 12- or 13-ft. centers in the suspended metal acoustic ceiling, 18 ft. above the floor. This installation maintains a general lighting level of 45 foot-candles. The ground floor is likewise illuminated by semi-continuous fluorescent units, to a general level of 25 foot-candles.

Administration Building. **The administration building, two stories and part basement, is also a steel frame structure, 75 by 225 ft. The second story has clear span, welded steel trusses 75 ft. long, on 25-ft. centers. This building, too, is completely air conditioned, with comparable lighting, acoustic treatment, and every possible provision for flexibility in the office areas.**

Below, gas generating building. Left, boiler house is seen behind cooling tower, and acid neutralizing tanks where wastes are processed





ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

RADIANT AND CONVECTION HEATING COMBINED

John M. Morse *

RADIANT or convection heating? This question has been debated for some time with no apparent resolution. Some heating engineers have suggested a compromise — utilizing the advantages of both systems. Generally, the choice has been determined by the requisites of each individual heating problem.

The answer proposed by our firm for several one-story houses having large areas of glass walls and concrete floor slabs is designed to take some of the advantages of a convection system such as rapid response and combine them with the "warm floor" advantage of a radiant panel in an economical system.† This was done by guiding hot air through the floor slab and releasing it to the room at the windows, forming a curtain of warm air in front of the glass.

Advantages

Such a system, by providing an additional amount of convected heat, allows more total heat output than is possible with ordinary floor radiant systems. It uses one medium of heat transfer for economy. It has the usual advantages of convection heating in fast pickup and control of air temperature, air circulation, air cleaning, and humidity control. The forced current of air across the glass tends to eliminate condensation on the glass and uncomfortable cold air drafts along the floor. The use of the slab as a carrier of the warm air puts all ductwork out of sight and eliminates cold floors.

Three houses have been designed with this new heating system. The Mercer Island house, which has been occupied since December 1947, has a plan that lent itself well to an underfloor, distributing header duct in a straight line along one side of the wings, with outlet grilles under the opposite windows and regularly spaced lateral ducts run between. Orientation or room planning requirements may not always allow such regularity.

The Bellevue house, still in the drawing stage, is for a 100 ft. sq. lot in a controlled suburban development. Planning for space and view has been integrated with planning for the heating plant: the house plan becomes a long rectangle to spread views from the rooms out over the site and to give a straight run for the heat-distributing header and short runs for the laterals.

The Lake Stevens house, with construction work started this fall, is an example of the adaptability of this system to a more spread-out and free plan. In this house the distributing header runs down the approximate center of the plan, and the branches and laterals serve the wings.

Heating Plant

Any usual utility room model of hot air furnace is acceptable. Since all hot air ductwork may be underfloor, one consideration in selection of the heating unit may be its height and the location of duct outlets, with a view to conserving room space. Another consideration would be the type of control possible for regulating bonnet temperature, air duct velocity, fan operation, etc. In the Mercer Island house, for instance, the high ceiling makes desirable a rather steady fan operation to eliminate air stratification, and the furnace unit must have a built-in temperature control to accomplish this.

A standard room thermostat is used

Mercer Island House plan shows heating system layout for distributing hot air through laterals (such as in photo, right) under floor slab before the air is released to the rooms

1

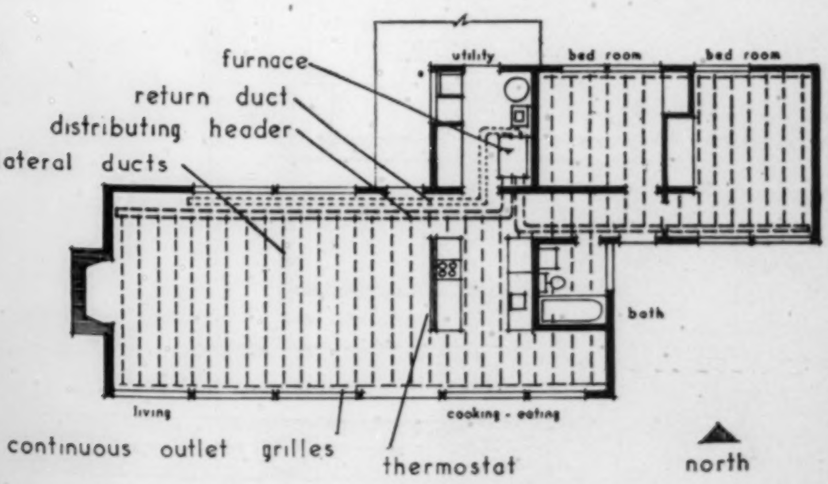


Photo by the author

2

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* Bassetti & Morse Architects, Seattle, Wash.

† Consulting engineer was Richard M. Stern, Seattle.

for house temperature control. Fuel may vary; in the first two houses, oil was used, and in the third, a heat pump connected with an old existing well was installed.

Ducts

The plan shown in Fig. 1 and the foregoing brief outline give some idea of the type of ducts to be expected. In addition to provisions for distributing and supplying warm air, return ducts are required to channelize or induce the flow of return air to the furnace. Generally, the more compact plan will demand less return ductwork. Underfloor return ducts may be desirable for the sake of getting them out of the way — their floor warming value would be negligible.

The material and construction of the ducts are matters about which there may be much difference of opinion, there definitely being room for still more new ideas and for improvement. Structurally, functionally, and economically, the choice of duct construction is a tough problem and some systems tried to date seem far from solving it.

The problem is to construct voids in the floor structure through which hot air may be forced without undue friction, in a manner that will warm the floor surface uniformly, and with the voids connected to a long grille or grilles in window stools — all this in a structure that is adequately strong, lasting, reasonable in cost and easy to install.

The method used in the houses described was predicated on a poured concrete slab as an inexpensive floor; thus it was necessary to make long horizontal voids in the concrete. Some sort of formwork was required; so for the laterals, stock, galvanized, 3-in. round downspouts were used 18-in. on center, buried in a 5-in. slab. Their life in the slab would not be all-important as the voids would remain. They are tough enough to stand up under ordinary concrete pouring, they are quickly placed, their cost is not excessive, the smooth metal wall gives good air passage and heat transfer.

Headers and branches, being larger and sometimes requiring insulation, present a less easily solved problem. In the Mercer Island house rectangular sections of preformed asbestos duct were used (see Fig. 4). Cutting these for lateral connections was easy, but the single-wall uninsulated type (11½ by 11½ in. cross-section) used for returns lacked proper resistance to deflection during pouring; and the substantial span of a thin slab over an unstructural material required steel reinforcement. For a different header in one of the other houses, poured concrete itself was formed as a duct.

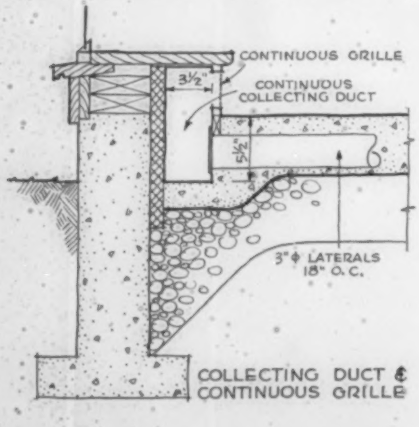
Grilles

Hot air grilles may be continuous, cut to size from stamped steel sheets — especially applicable where horizontal air discharge and attendant very low velocity is required. Manufactured grilles set in the floor or window stool for a vertical spread up the window are being used in the Bellevue and Lake Stevens houses.

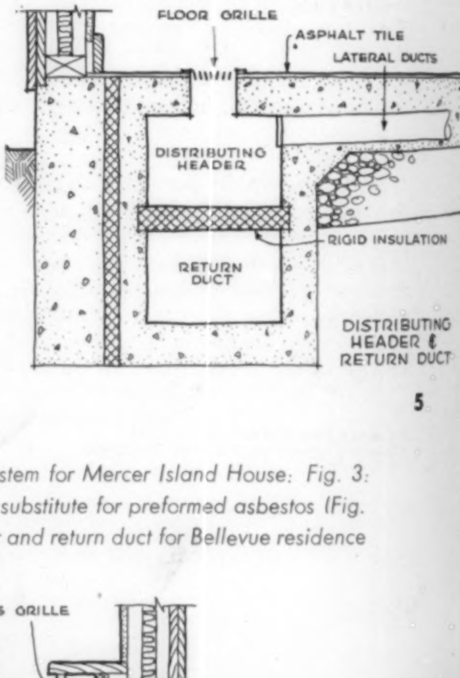
Mercer Island House

Construction Cost* (October 1947):

1. Furnace & controls	$685
2. Above-floor ductwork at furnace (including outside cold air duct)	125
3. Underfloor header & return ducts material (preformed asbestos)	225
4. Underfloor lateral ducts (galv. downspouts)	45
5. Continuous grilles, supply & return (stamped steel)	10
6. Labor on # 3, 4, & 5	160
7. Additional concrete (besides ordinary slab)	30
	$1280

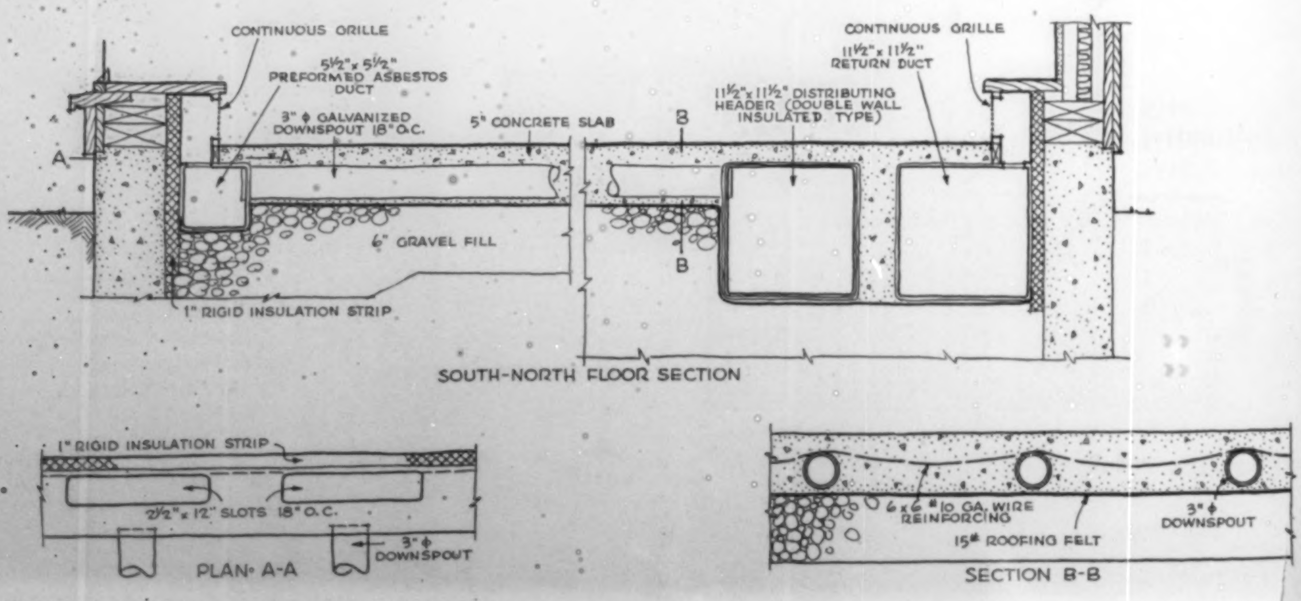

CONTINUOUS GRILLE
3½"
CONTINUOUS COLLECTING DUCT
5½"
3" φ LATERALS 18" O.C.
COLLECTING DUCT & CONTINUOUS GRILLE

3


FLOOR GRILLE
ASPHALT TILE
LATERAL DUCTS
DISTRIBUTING HEADER
RIGID INSULATION
RETURN DUCT
DISTRIBUTING HEADER & RETURN DUCT

5

Fig. 4: details of underfloor distribution system for Mercer Island House: Fig. 3: formed, poured concrete duct designed as substitute for preformed asbestos (Fig. 4, left). Fig. 5: section of distributing header and return duct for Bellevue residence


CONTINUOUS GRILLE
5½" x 5½" PREFORMED ASBESTOS DUCT
3" φ GALVANIZED DOWNSPOUT 18" O.C.
5" CONCRETE SLAB
A
A
B
B
11½" x 11½" DISTRIBUTING HEADER (DOUBLE WALL INSULATED TYPE)
CONTINUOUS GRILLE
11½" x 11½" RETURN DUCT
6" GRAVEL FILL
1" RIGID INSULATION STRIP
SOUTH-NORTH FLOOR SECTION
1" RIGID INSULATION STRIP
2½" x 12" SLOTS 18" O.C.
3" φ DOWNSPOUT
PLAN A-A
6 x 6 #10 GA. WIRE REINFORCING
3" φ DOWNSPOUT
15# ROOFING FELT
SECTION B-B

4

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* This compares with an estimated $1000 installation of conventional overhead hot air. Cost for the bedrooms isn't included. Cost savings could be effected by restudy of construction item No. 3, proposing, for example, poured concrete ducts (see Fig. 3).

MUSEUM LIGHTING STUDIED IN LABORATORY

By Laurence S. Harrison

Business Administrator, Metropolitan Museum of Art, New York City

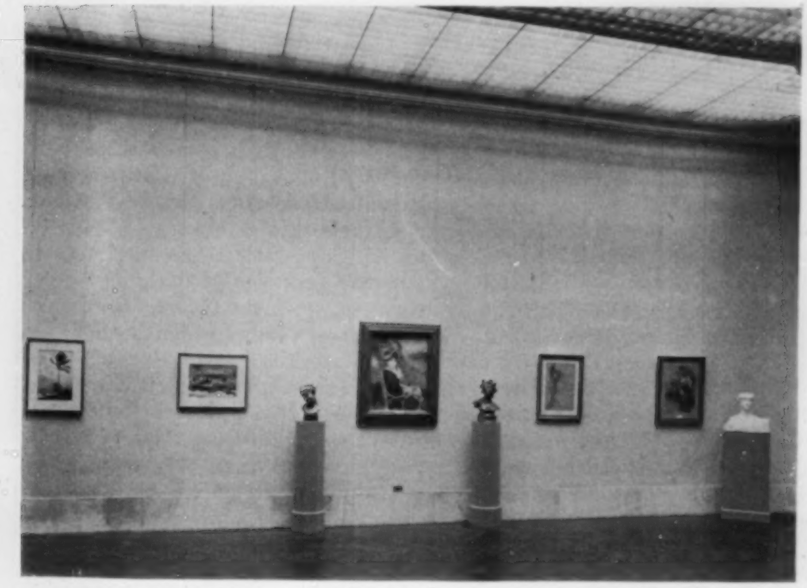
ONE of the most important areas of planning for the proposed reconstruction of New York's Metropolitan Museum of Art is, of course, the application of modern lighting techniques to the exhibition of art objects. It is axiomatic that good seeing is the primary requirement in any field of visual education. To the Metropolitan Museum, the problem is not a simple one. Its ten curatorial departments represent a vast collection of many classes of material ranging from the archeologies through Medieval, Renaissance, Far and Near Eastern to Modern European and American cultures.

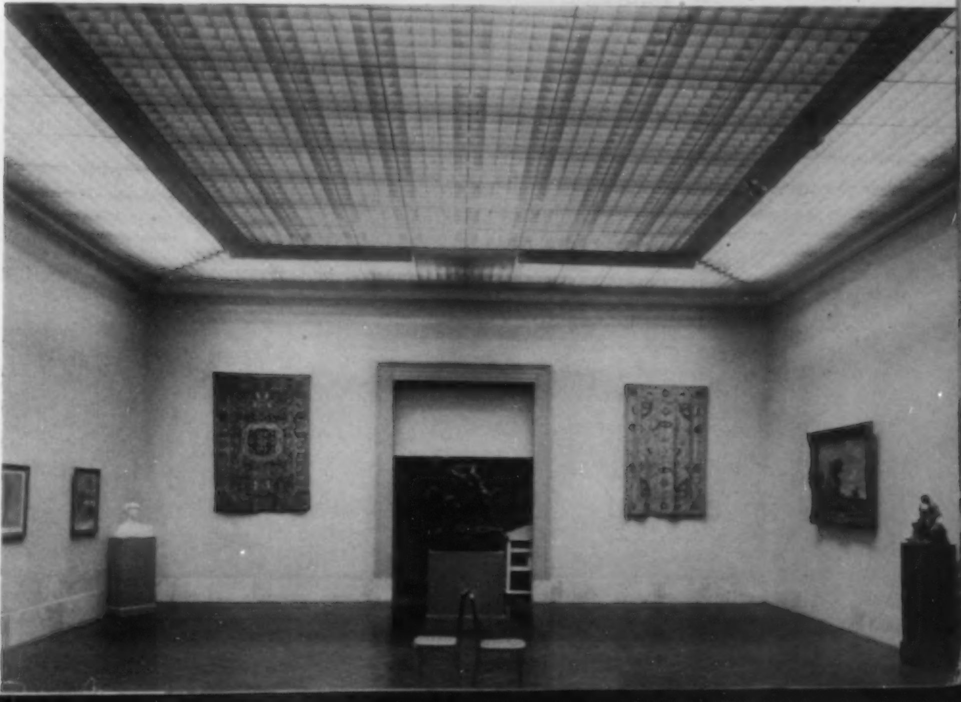
The determination of proper intensity levels, as well as color tonalities and angles of presentation is complicated by factors, esthetic and other, which have not as yet any quantitative weight in applied lighting calculations. Nor do they seem susceptible of the same kind of determination as do factors governing commercial or industrial installations. The chief reason for such complication is that, in the field of art appreciation as well as art creation, each individual is entitled to his own criteria.

Since the mission of any historical art museum (and there are many of the Metropolitan's character) is chiefly to preserve the products of individual expression, this fact, as a principle, cannot be denied, nor should any attempt be made to change its aspects. This is to say that common denominators of opinion as to what kind of lighting makes objects look "best" are discernible neither among laymen nor even among the experts. The reasons for this, as will appear, make the task of prescribing for the artificial lighting of museums a risky one to say the least.

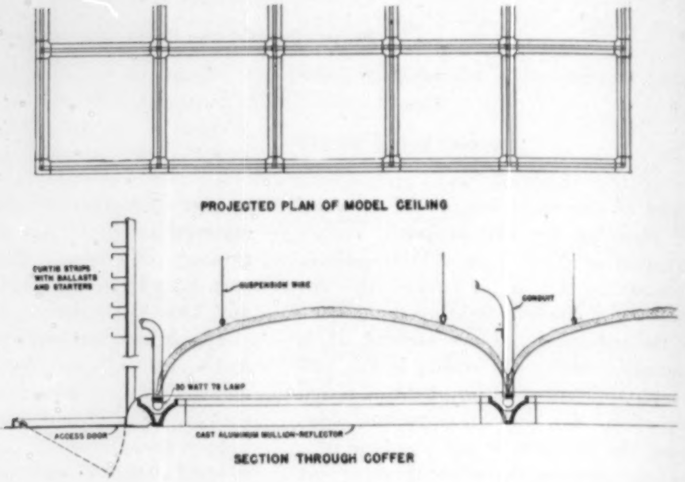
LIGHTING VS. TRADITION

It is also to say that whatever is proposed must not be forced into adoption, but rather weighted carefully against curatorial or esthetic concepts on one hand and the realities of museum economy on the other. Certainly, for example, theatrical lighting or standards deemed suitable for mass selling appeal, though they may be necessary to retail merchandising, are to be used with extreme caution in showing works of art which, as historical documents, should suffer no distortion, and, as objects of





A view of the louvered ceiling in one of the test galleries. This installation gives about three times the light the Museum has at night in other galleries. Color of light is also tested. Upper view shows a test of 6500° K fluorescent lighting on paintings with predominant blues and pastel shades. This lighting is good for them, not so good for reds and greens.


PROJECTED PLAN OF MODEL CEILING
CURTIS STRIPS WITH BALLASTS AND STARTERS
SUSPENSION WIRE
CONDUIT
30 WATT T8 LAMP
ACCESS DOOR
CAST ALUMINUM MULLION-REFLECTOR
SECTION THROUGH COFFER

Detail of coffered ceiling used for lighting another test gallery. This is a test installation designed merely to test deep coffers with fluorescent lamps in square pattern (see photo opposite page)

beauty, need no distortion. As a matter of fact, one of the most critical questions to be answered is just how far may available modern lighting means be employed to dramatize art objects without distorting their appearance?

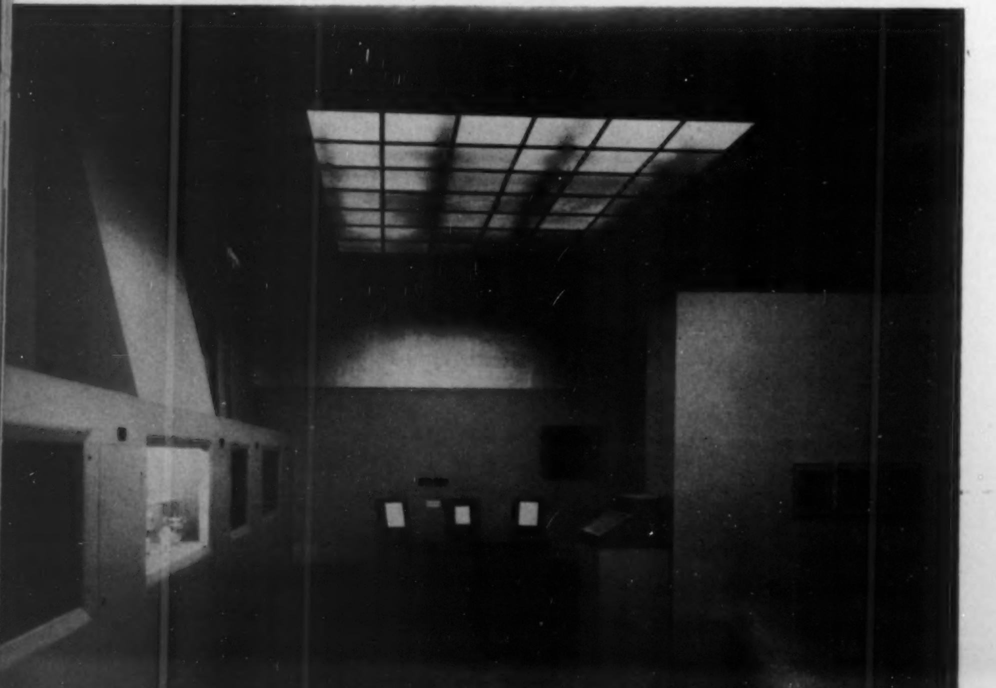
To those responsible for museum economy and for maintaining, if not increasing, public interest, these realities are uncompromising. Most of the ranking art museums of this country sadly lack either capital or operating funds or both. Most of them have long needed modernization of their lighting systems.

Consequently, with the exception of a few, individual gallery installations, in which occasionally brilliant ideas have been tried out, there is no existing example of an entire museum installation in which completely satisfactory applications of the most recent lighting techniques may be seen in this country. The museum field is, therefore, one in which an architect or an engineer, unless he adopts strictly traditional standards, simply cannot be sure, without a full-scale sample demonstration, that what he proposes to specify will be accepted. The risk of extras exceeding a contract price is, under these conditions, too high. This situation, of course, poses the question of the validity of retaining traditional concepts of museum lighting in the light of present day developments.

ARTIFICIAL VS. DAYLIGHT

No competent illuminating engineer will take the position that daylight, when available, is not the most desirable for human vision. But, at the latitudes of the cities in which most of our museums are located, under average weather conditions from October to May — which are the months of peak attendance — adequate daylight is not available and supplementary artificial light is required for 75 per cent of the time during public visiting hours. More important is the fact that such supplementary light is required on a highly intermittent basis. The result is actually an immeasurable lack of uniformity of both light intensities and color values on gallery walls and floor areas. For example, on a bright, sunny morning, the east wall of a top lighted gallery may remain in comparative gloom with brilliant intensity on the west wall. The reverse would occur in the afternoon. Moreover, the frequent and intermittent obscuring of sunlight by clouds and the lack of sufficient manpower to monitor adjustable skylight louvers, where used at all, imposes a severe task on the adaptive processes of the public's eyesight, or, when too severe, kills the enjoyment of visitors while the condition obtains.

It is argued that these changes of light are indispensable to the esthetic enjoyment of great paintings, tapestries, sculptures, etc., and that to maintain a rigid uniformity of lighting values in a gallery would be oppressive and monotonous. The validity of this viewpoint must be admitted if the authority of individual criteria, as stated before, is accepted. Right here, however, is the area of controversy in which certain curatorial opinion has come to grips with the already discernible trend toward fully artificial lighting in the future. The architect or illuminating engineer would do well to recognize this situation and not to discount it, because the preservation of these changes of


Artificial skylight with light polarizing screen. Note extremely low brightness of ceiling itself relative to that of white paper sheets pinned to backs of chairs

natural light are felt to be a fundamental requirement in gallery lighting by many curators of distinction and their associates in the field of fine arts, both here and abroad.

It is surely no offense to esthetic ideals to say that if it be too costly to serve all of the people, it becomes necessary to serve only the majority. An "experienced" curator of historical paintings, let us say, or one whose authority and connoisseurship respecting great art has become recognized, has the same attitude toward these masterpieces as had the original owners or their succeeding collectors who, through the centuries, have lavished the care upon them which has made them available to us. These people saw and admired these great works every day with the same stimulus which sought their possession in the first place.

They also had the privilege, as has the curator, of viewing them under the continuous symphony of color and shade which natural light plays daily from dawn to evening. It is understandable that to them, the changing aspects of the great paintings, sculpture, or tapestries had special meanings. These meanings were and are, without doubt, emotionally moving, but there can be no denial of the fact that such spiritual significance, if it could be so characterized, was and is, personal to the curator, the artist or to anyone who, knowing great paintings, haunts the gallery continually.

These, however, are not a majority, nor does there appear to be any course of instruction by which such reactions might be assured to the uninitiated. Even if there were, and Mr. and Mrs. Smith could be persuaded to revisit the museum often enough to catch the evanescent splendor of some luminous aureole on a Rembrandt or an El Greco, they could, as a matter of principle, say that they didn't like the way it looked and be just as right as the curator was.

All this is meant to state that uniform lighting would by no means strip great works of art entirely of their esthetic qualities any more than does the mistreatment they now get from the gloom in which the public is too often expected to view them. Perforce, a museum *must* use artificial light if its collections are to be seen at all, on all floors, and at all hours of the day. Most of the long-established art museums show evidence that lighting installations have, in the past, been planned with tolerance rather than enthusiasm. The result has been, in many instances, a characterless mixture of both natural and artificial light which cannot be argued for on any grounds — esthetic or practical. The two do not mix to the advantage of either. Any daylighted gallery, so situated as always to require some artificial light will, if the latter is designed properly, look its handsomest at night.

It must be said, however, that incandescent light has been and is, for museums, much too costly to operate in a system designed to achieve the foot-candle levels and shadowless diffusion of clear, sunless daylight. The practical ability of modern fluorescent lamps economically to approach daylight values, their complete reliability, length of life and versatility being at present established, it now appears fair to test the proposition as to whether the overall benefits of fully artificial lighting may not outweigh its esthetic deficiencies.

There is a strong case for it in probable evening openings. The museum of the future must recognize more broadly its obligation to the industrial and office worker who has no opportunity to visit its galleries except at the sacrifice of weekends which quite properly belong to outdoor pastime. Already certain ones are opening their doors from one to nine P.M. daily. This means, of course, that the margin of daylight hours, which now redeems the depressing inadequacy of museum artificial lighting, will be reduced to a point at which poor attendance after dinner hour can almost be guaranteed unless the lighting problem is solved.

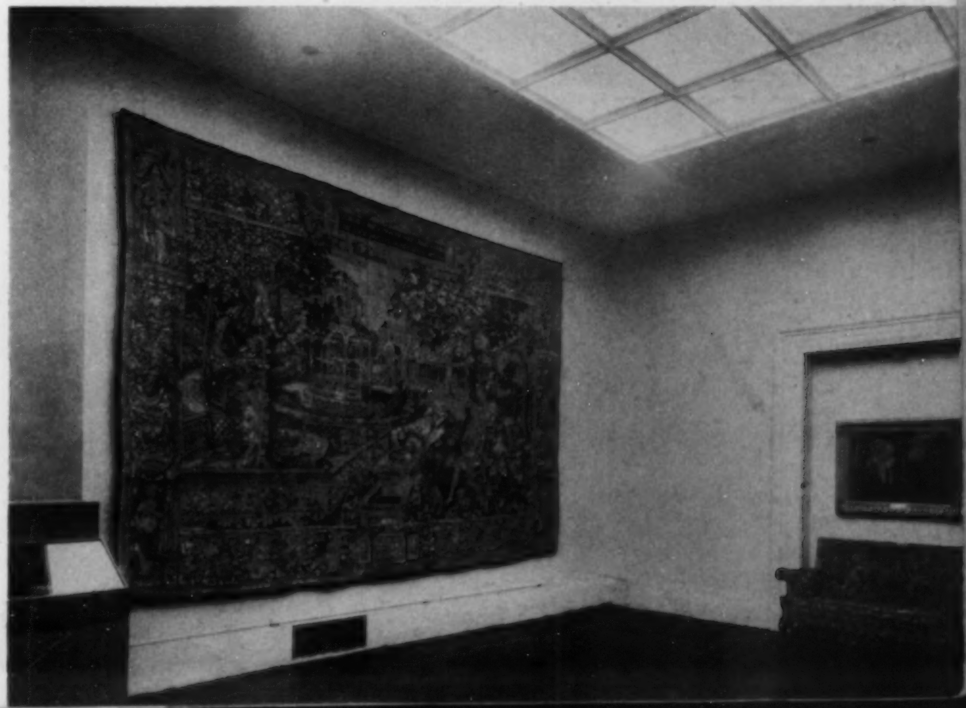
Then there is the question of the investment and maintenance costs of skylights relative to simple roof slab construction. Counting the loss of investment income at 4 per cent in lieu of depreciation estimates, the present-day added annual cost of glass skylights installed and maintained is approximately $550 per 1000 sq. ft. of roof area.

In the case of the Metropolitan Museum, there is no point in converting existing top-lighted galleries to solid roof construction, but such conclusions as are reached would certainly govern the design of additional wings.

A LIGHTING LABORATORY

With design problems related to the foregoing in mind, the Museum's Architects, Messrs. Robert B. O'Conner and Aymar Embury II, requested the trustees of the Metropolitan Museum to authorize an experimental program. Accordingly, a testing laboratory was designed and built by the Museum using only commercial equipment and open-market material. Valuable counsel and much of the basic calculations of lighting elements were rendered by Dr. Ward Harrison and Mr. James Ketch of the General Electric Company's Nela Park Laboratory. The effective co-operation of the Museum's curators and their professional staffs has provided, in the discriminating selection of objects for test, impressive demonstrations and cues to the solutions being sought.

These galleries, located in the south wing of the Museum, are not open to the public, but are now employed by the departments of the Museum for test installations, the recording of staff and membership reactions and the ultimate writing of specifications. It should be emphasized that no attempt was made to install the "ideal" gallery but rather to make available a reasonable choice of



A XVIth century Flemish tapestry lighted by coffered ceiling detailed on opposite page, with all lamps lighted. Note uniform distribution of light up and down systems — i.e., incandescent, fluorescent, diffuse and concentrating — with sufficient flexibility to obtain three to four levels of intensity, as well as adjustment to color values.

From the standpoint of occupancy, two distinct classes of space exist in most museums. Top-lighted, second floor galleries, directly below skylights, require either the separate or simultaneous transmission of daylight and artificial light. Such galleries are usually used for paintings, prints, water colors, drawings, rugs, tapestries or other wall mounted material.

First floor galleries must depend almost wholly on artificial light, with or without side fenestration. Here again, good seeing is burdened with tradition. Window glare is, elsewhere, one of the most bothersome problems of the illuminating engineer. In a museum, windows take up needed wall space which, as those who have tried to raise building funds fully realize, is hard to come by. Moreover, any attempt to make shadow areas around and below windows useful by artificial light is hopeless because of the window glare, and if it be so designed as to avoid artificial sources of glare as well, such an attempt must seriously dilute, if not cancel, the effect of any changes of natural light in the rest of the room. If case material is exhibited in window-lighted space, care must be exercised to avoid the annoying and obscuring specular reflections from case glass. The number of cases which may be shown and the most desirable layouts thereof, are hence limited and restricted. If cases are artificially lighted internally, there is no point to window lighting anyway, except for occasionally relieving the psychological impediment in any closed space.

The experimental galleries, designed primarily to cover the specific conditions at the Metropolitan Museum, assume the use of daylight through ceilings only. Test gallery K-29, being top-lighted, is equipped with a baffle or louvered ceiling, at a height of 16 ft., consisting of 30-in. square removable sections having oblong, aluminum cells, with a shielding angle of 53°, in the center of the room, suspended below a conventional T-bar grillage with clear glass lights. These latter are "blacked out" with wallboard panels, laid on top of the glass, when necessary, to create fully artificial conditions. Around the periphery of the room, extending a little over six ft. from the walls, a system of directional louvers was installed with fins parallel to and slanted 20° toward each wall in order to permit a relatively high-level concentration of light, from special, Curtis parabolic, fluorescent strips or from various forms of concentrating incandescent units, to be projected on the walls.

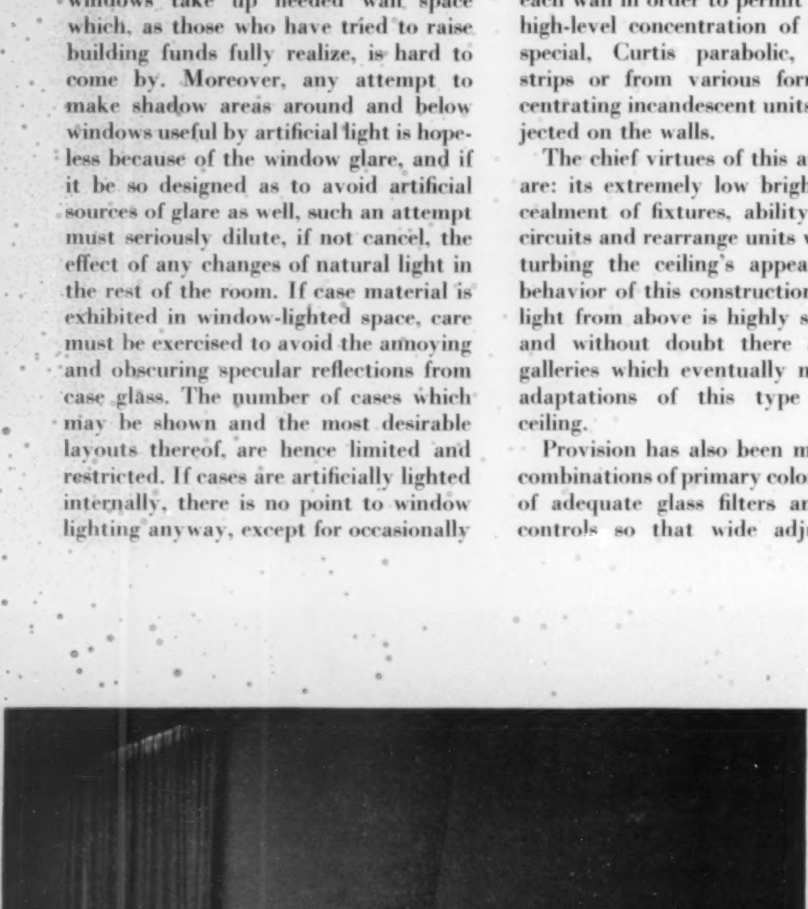
The chief virtues of this arrangement are: its extremely low brightness, concealment of fixtures, ability to change circuits and rearrange units without disturbing the ceiling's appearance. The behavior of this construction with daylight from above is highly satisfactory, and without doubt there are certain galleries which eventually may require adaptations of this type of louver ceiling.

Provision has also been made to test combinations of primary colors by means of adequate glass filters and rheostat controls so that wide adjustment in tonality, or color composition, of *white light* may be used to project on rugs, tapestries and textiles. (There is no requirement for any single color projection.)

The method of adjustment of color composition consists of an initial concentration over the wall of approximately 50 foot-candles of fluorescent light of 6500° Kelvin which carries enough blue so as to obviate the need for separate blue filters. With a tapestry in place, for example, R-40 spots with red, green, and amber filters are focussed on the object and the proper combination of tones adjusted by dimmers, until, as the curator may dictate, the proper "balance" between the colors which make up the fabric itself is secured.

When such adjustment has been completed, and the described combination of lamps switched on simultaneously, it is almost impossible to detect what color adjustment has taken place, or that any liberties at all have been taken with the "white" light on the tapestry. Until one color of the several contributing light sources has been switched off, the effect becomes brilliant without suggesting exaggeration. The scheme provides efficient means for obtaining qualities of light which can otherwise only be obtained from natural light, but under control rather than accidentally. Since an initial concentration of "seeing" light is used first, a *minimum wattage* of color filtered incandescent light is needed. The usual inefficiency of building up of white light by mixing primary colors is, therefore, not present.

The second test gallery, K-24, is equipped with two types of ceiling treatment as may be required for first or ground floor spaces. The height in this gallery is also 16 ft. The first form of treatment resembles in general character the indirectly lighted coffer system designed by Saarinen for the Cranbrook School at Bloomfield Hills, Michigan. In this case, the coffers, each weighing 30 lbs. and mounted together closely with about ½ in. separation at the spring lines, are precast of plaster with steel wire armatures for ready suspen-



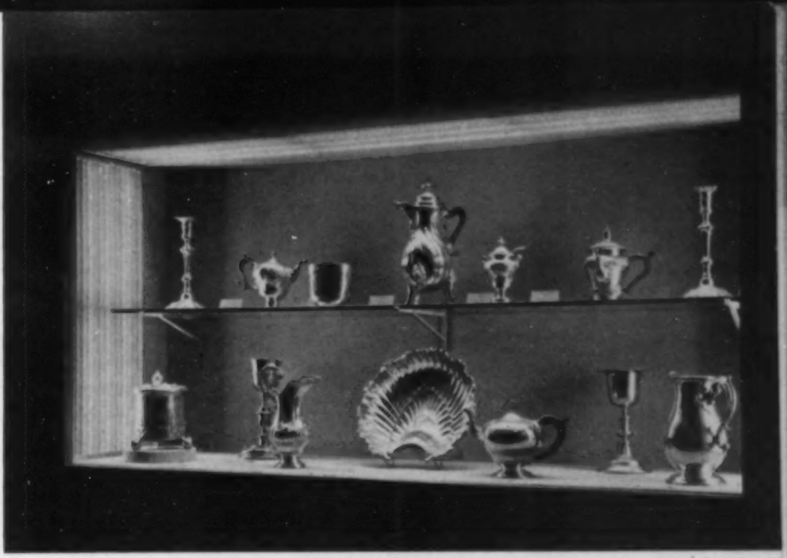
Contrast between artificially and naturally lighted cases. Unit on right, lighted by daylight from above, contains miscellaneous crystal and metal work sion from ordinary, angle-iron stringers secured to the ceiling. Furring steel was used for bracing. The coffers are 38 in. square and conduit wiring at each intersection, accurately centered by a wooden template, serves 30-watt, T-8, 4500° Kelvin, fluorescent lamps. These are installed along each line between coffers and around the perimeter of the assembly.

The plaster coffers have an oval section employing only two radii and curve at each corner. They are finished with high reflecting paint. Reflectors with crosses, tees, and ells are of cast aluminum alloy, painted inside with a high reflecting finish. They completely hide the lamps and, in place, resemble simple mullions or ceiling sash. They may be removed, cleaned, replaced and lamps renewed without tools.

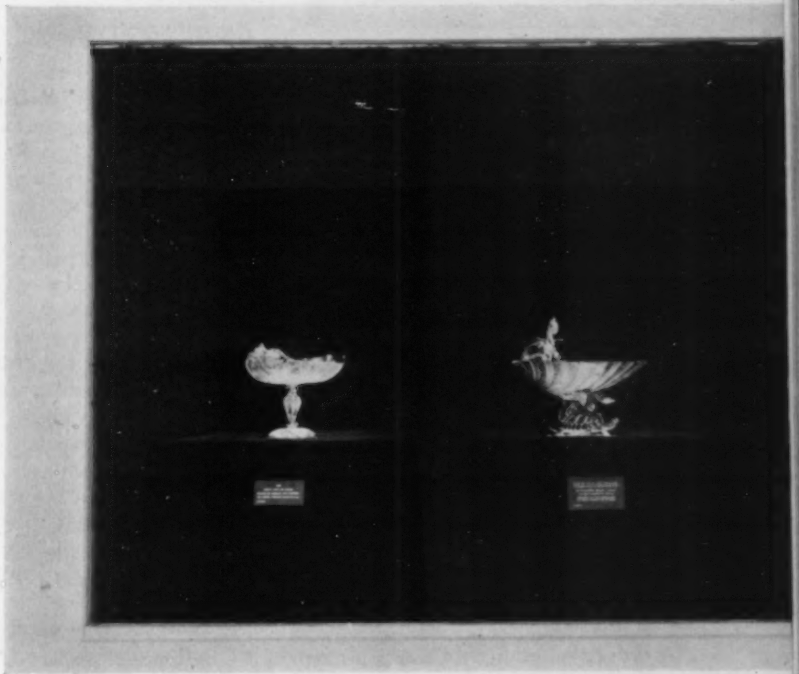
The characteristics of this particular design are such that if only those lamps are lighted which run in one direction, the entire coffer uniformly reflects their light with hardly any discernible indication over the coffer that all lamps are not energized. The switching on of the lamps running normal to the first group therefore serves only to increase the intensity of the light reflected from the coffers. At maximum value, the intensity directly below the assembly and five feet from the floor is 40 foot-candles.

An important feature of these reflecting coffers is their lateral distribution of light. One photograph shows a Renaissance tapestry hung on an adjacent wall over which there is less than 15 per cent difference in light intensity on any point over its entire surface. It is obvious that this type of ceiling has relatively high brightness. Its efficiency also depends on the number of lamps around the perimeter which deliver to the coffers a little more than half their initial output, relative to the number of lamps within the perimeter which deliver their full initial output. This ratio of "outside" to "inside" lamps varies with the size of an assembly of coffers and also with the length of the assembly, the width remaining constant.

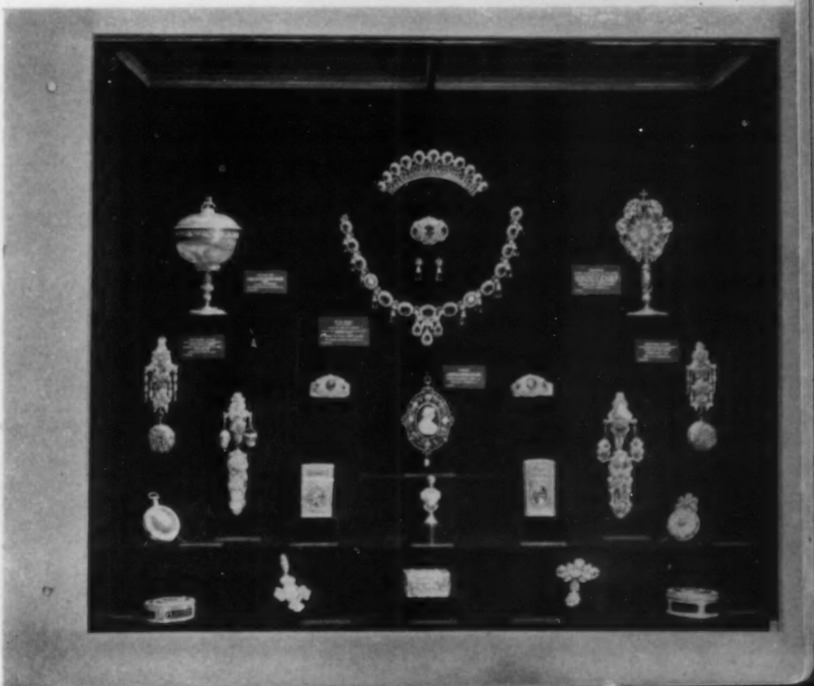
Installed at a ceiling height of 18 ft. or more, this ceiling should prove to be a handsome and, for indirect lighting, a remarkably efficient installation for general lighting purposes. This model of 20 coffers, arranged in a 4 by 5 assembly,



European silver in directionally louvered case, 100 f.c. of 4500° K. fluorescent light at center of deck, delivered from sides and top



When Benvenuto Cellini designed the cup at the right, this top-and-bottom lighting had not been thought of, and not all curators like it



Case showing jewelry, enamels and reliquaries, top-lighted through plastic louvering, with concealed spot. Note low source and background brightness having 49 lamps and 1470 lamp watts, has maintained an average of 35 foot-candles over 576 sq. ft. of floor area during the past three months or with less than 2.6 watts per sq. ft.

The other type of ceiling treatment consists of conventional ceiling sash of 1–1½ in. T-bars glazed with a light-polarizing screen of Polaply plastic sheets "sandwiched" between ¼-in., obscure wire-glass and ⅛ in. thick, clear picture glass. This material does not distort color. It produces maximum polarization at a 57° angle of incidence. In order to increase its inherently low transmission efficiency, in the polarizing plane, a surface of high reflectivity was painted inside the housing within the hung ceiling above the sash. With successive rows of simple, fluorescent strip installed about 18 in. above the glass, this scheme takes some advantage of the interchange of reflected light between the top surface of the glass and the painted interior and, in this manner, as much light as possible is passed through the polarizing film at the required 33/57° angle.

This assembly has two promising results. Its partially polarized light, falling on highly specular surfaces, helps to reduce glare, and suggests its use in galleries showing period furniture having unusual burls or grains, intricate inlays or marquetry designs, below highly polished and obscuring surfaces. Its second result is a sharp cut-off beyond 45°, so that the brightness of this type of ceiling is phenomenally low within normal line of sight.

In order to obtain fair, comparative values between these two ceiling treatments, forty-five 40-watt lamps were installed above the polarizing ceiling sash. The assembly, with 1800 lamp watts, has also maintained approximately 35 foot-candles over 576 sq. ft. of floor area, or with 3.1 watts per sq. ft.

The remaining features in the gallery are devoted to experimental, case and feature lighting designed primarily for the development of means to control source brightness as well as to reduce relative brightness of surrounds; in other words, to subdue art objects' "competition".

CONCLUSIONS

During the few months in which this testing laboratory has been in operation, several general conclusions have become established. The first is that response to the color composition of light is fully as important a consideration as are the presentation and volume of light. Another is that "seeing" in a museum gallery should be pleasant and satisfying as well as educational. This is to say, for example, that extraneous glare and brightness, if intelligently controlled, may be stimulating rather than injurious to the visitor. Christmas tree lights can hardly be denied to young and tender optic systems on the ground that glare is poison to the eye. A bland diet may be beneficial but it is not much fun, and art curators of impeccable scholastic integrity, which is to say all of them, have long accepted the discreet use of the spotlight as a necessary adjunct to exhibition methods.

This does not mean that concentrating sources of light should be applied indiscriminately. On the contrary, every effort should be made, when desirable, to achieve bold contrast and "sparkle" on an object, but with least consciousness in the observer as to how they are being obtained.

A third and most important conclusion is that *visible fixtures in gallery spaces are definitely a thing of the past.* The advent of the commercial fluorescent lamp, less than 15 years ago, crystallized a concept which had been developing in applied lighting for many years. This concept holds that "good seeing," which is the objective of all artificial lighting, is best served by a "system" which includes all elements and surfaces contributing to optic sensation in a given area. The amount of light is, therefore, not as important as are the brightnesses of light sources, and of the objects and their surrounds, which are being illuminated.

The fluorescent tube is not a decorative device in terms of traditional fixtures, and there is hence no incentive to have it exposed when its performance, in terms of good seeing, is better for being out of normal line of sight. The museum gallery of the future will have no fixtures, but rather luminous surfaces to provide seeing.

Lastly, it has also become clear that the fluorescent lamp of 4500° Kelvin gives, by far, the most neutral, balanced and accurate light for color response. It is far superior to any other production phosphor yet developed for color matching, but like a "pure" musical tone, it needs overtones. As a diffuse background for incandescent concentration, it seems to have outstanding properties for gallery walls.

One specific decision has thus been reached, based on the last-described general conclusion. Through a series of demonstrations and resulting study by the Museum's Director, Francis Henry Taylor, and the Curator of Paintings, Theodore Rousseau, Jr., a basic specification for the artificial lighting of paintings' galleries has been derived. Designs are completed for a sample installation employing special shielding and light obscuring methods incorporated into traditional ceiling sash to reproduce the desired effects as established by test. The new gallery is now under construction for opening to the public sometime in the spring of 1949.

Should experience with this scheme be found satisfactory and the design prove to be within construction cost limits, one important step will have been taken toward the final objective of this program. If the ultimate results, in glass, metal, plastics or whatever materials may be indicated, can be achieved at a cost in money which museums can either afford to spend or raise, then this laboratory will have justified itself.

A special experiment with recessed lighting on a XVIIth century Dutch painting; 4500° K. fluorescent light, from the bottom and sides, emphasizes Vermeer's original lighting of the subject and provides faithful response to the original colors

WEST COAST INNOVATIONS IN SWIMMING POOL DESIGN

Based on data by Paddock Engineering Company

DURING the past few years a new approach to swimming pool structural design and procedure has developed on the West Coast through the use of pneumatically applied concrete, commonly known as gunite. This method is rapidly supplementing form-poured structures for private as well as large public swimming pools in that section of the country.

The reasons for this change are fairly obvious. Pneumatically applied concrete is, generally, much denser, heavier and stronger than form-poured concrete. As the use of forms is entirely eliminated, great savings are effected, especially with present high costs for labor and lumber. Since gunite is shot directly against grade, no over-excavation or back filling is required.

In designing a swimming pool to be constructed of gunite, it is usual practice to design the lower portion of the swimming pool wall in the form of a vertical radius curve, thus eliminating the cantilever footing usually designed for form-poured construction. This type of wall section makes possible the use of a thinner wall and considerably less reinforcing steel to obtain the same resistance to the stresses encountered.

Another great advantage is the saving in construction time. Under ordinary construction procedure, a form-poured, vertical wall swimming pool usually requires four to six months to install under ideal conditions, while a comparable gunite structure can be installed in approximately six to eight weeks.

Underwater Lighting

For underwater lighting, concentration of between one-half and one watt per sq. ft. of pool area is generally satisfactory, depending on how the lights are to be used. If for effect only, this concentration can be decreased; however, for public pools where underwater lights are used for night swimming, it is advisable to keep the wattage fairly high.

The wet niche type of light (see detail, top of page 144) affords a great number of advantages over other types in that it is more easily accessible for repairs. This is easily accomplished with the wet niche light by merely removing it from its niche, placing it on the deck of the pool and proceeding with the necessary changes.

In the case of a dry niche light, it is necessary to drain the pool below the light lens before any gasket changes can be made. Also in case of damage to the lens, the pool would have to be drained in order to make the necessary repairs. In some instances, where the equipment room is adjacent to the pool wall in which the lights are located, the entire filter equipment might be flooded because of a damaged lens or faulty gasket installation. With wet niche lighting, the unit is completely immersed in water which tends to keep the equipment cooler, thus giving longer life to the lamp.

Underwater lights are usually centered 30 in. below the water's surface, and on pools 50 ft. in width or less, the side wall lights should be staggered with reference to those on the opposite wall to provide even lighting.

Swimming Pool Chlorinating Equipment

Swimming pool chlorinators should have the following characteristics:

1. The chlorinator should be of the vacuum type because of the safety feature. In case of leaks within the machine, air from the outside is drawn in rather than allowing the gas to escape.

2. It should be of the solution-feed type because it allows complete mixing of the chlorine and water before it enters the pool.

3. A manually operated machine is usually specified because of the great saving in initial cost. A fully automatic chlorinator is not considered necessary because there generally is, and should be, an attendant present to operate the chlorine equipment and check the concentration of chlorine in the pool at all times.

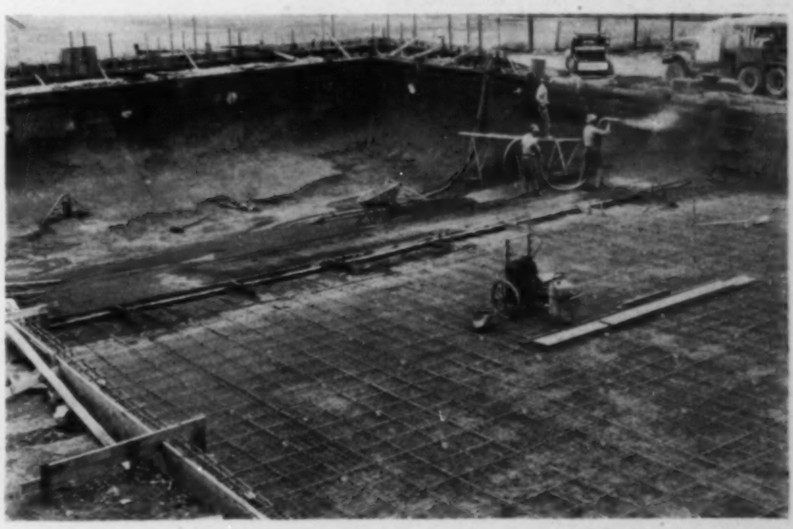
In addition to the foregoing, the chlorinator specified should be of ample size not only to take care of all normal operating requirements, but also to have sufficient reserve capacity for breakpoint chlorination or extra heavy dosage when required by abnormal conditions.

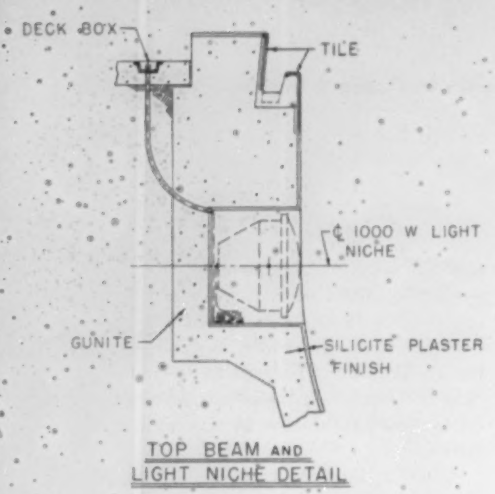
All chlorinators, regardless of type, should be adequately vented so that in case of water failure or stoppage, any escaping gas will be carried to the outside so that the chlorinator can be accessible for repair.

Swimming Pool Filters

Recently, considerable attention has been focused on a new type of filter for swimming pools, using diatomaceous earth as filter media. These filters have the advantage of providing the required filter area in much less space than that occupied by the conventional, rapid, sand pressure filter. They also produce an effluent of high clarity. Various types of elements such as carborundum, wire mesh and porous plastic have been used to support the diatomaceous earth. An analysis of records kept over a two year

Gunite being applied in construction of 60 by 100 ft. swimming pool. Note copper dam expansion joint and beam (center of photo) and steel wire reinforcing





Detail illustrates use of wet niche light and the type of overflow gutter employed

period was said to indicate that diatomaceous earth installations may be successfully used for large public swimming pools where a thoroughly trained and competent operator is available at all times. The initial cost is reported somewhat greater than that of pressure sand filters, and the maintenance cost considerably higher. The greater initial cost is sometimes offset by the saving in floor space. Use of diatomaceous earth filters is not recommended for average private pool or for small public pool installations at this time.

Some of the basic points for proper filter design are as follows:

1. Filter tanks should be constructed of high grade tank steel with dished head, and should be welded both inside and out. Proper attention must be given to the correct thickness of the steel. Tanks should be designed for a minimum working pressure of 50 lb. and a safety factor of 4. Standard manholes and openings should be provided. The tanks should be supported by adjustable screw jacks to allow for unevenness or slope in filter room floors and they should be high enough to allow proper circulation of air underneath the tanks.

2. Underdrains should be constructed so as to give proper distribution through the tank at approximately 6 in. intervals. Materials used for the underdrains should be either cast iron or brass. Nozzle type orifices for underdrains have some disadvantages in that they have a tendency to become plugged where hard water occurs, and also when they are placed in the upper side of the underdrain header, they can be partially closed off by the filter rock. Orifices on the under side of the underdrain laterals are much simpler and usually give much more satisfactory results, since they cannot be covered by the filter rock and they are less subject to stoppage by alkali deposits.

3. A simplified face piping arrangement is desirable for pool filter plants. More elaborate piping arrangements serve no purpose for this type of installation and greatly increase the cost. Standard screwed or flanged fittings should be used, depending upon the size of the filter plant. Coagulant and alkalinity feeders should be constructed of heavy cast iron, using brass interconnecting pipe between them and a suitable pressure differential device such as a venturi tube or an orifice plate. Proper flow-regulating valves should be installed in the interconnecting piping to prevent a too rapid feed. Gauges showing influent and effluent pressures and a sight glass to indicate backwash effluent should also be present in all filter plants. It is advisable on larger filter installations to install rate-of-flow meters so as to be able to check filter and backwash rates as well as pump capacity. Without this type of instrument, it is very difficult to keep an accurate check on the condition of the equipment. A strainer should be placed ahead of the pool circulating pump in all installations to protect the pump impeller.

4. Filter media should be composed of well rounded particles of rock and sand which are properly graded, starting with 1½ in. rock on the bottom and grading to silica sand with effective size of about ½ mm. Filter media should be free from limestone, clay and such matter.

Pool Fittings

Much can be said about individual characteristics of pool fittings. The essential points, however, are simplicity of design with effective distribution of water. On large pools, the inlet fittings usually should have some means of regulating flow so that even distribution of incoming filtered water can be obtained.

Main outlet fittings should be of sufficient size so as to keep the velocity of the water near them at a very low rate. In most cases, the open area of the grating should be two to five times the area of the connecting piping.

Vacuum cleaner outlet fittings should be placed at intervals, wherever possible, so that every portion of the pool can be reached with a section of hose 50 ft. or less in length.

No-leak flanges may or may not be placed on pool fittings, depending upon the density of the concrete in which they are encased. Where very dense and compact concrete or gunite is installed in the pool, no-leak fittings are of little value. However, if there is some question as to the manner in which the concrete is placed, no-leak fittings may prove valuable in preventing leakage around pipes.

Two general types of gutter, the flat rectangular type and the angle type, are most widely used. The angle type gutter has some advantages over the rectangular type in that it provides an open area on the vertical side of the gutter which allows for drainage even when leaves or other debris are covering the horizontal section of the grill.

Swimming Pool Vacuum Cleaners

In the design of vacuum cleaners, two major factors should be considered:

First, the size of pool and the pump capacity from which the vacuum cleaner will be operated.

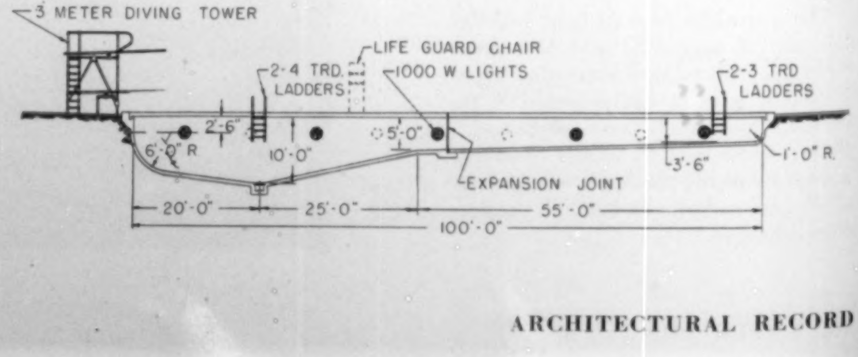
Second, the general shape of the pool, whether it is vertical-wall, poured-concrete construction or whether it is a gunite type pool in which portions of the wall are curved.

Usually the vacuum cleaner used on vertical-wall pools should be either the three or four wheel suspension type in which the orifice of the cleaner remains at a uniform distance above the pool floor, insuring uniform suction.

The two wheel type cleaner is more suitable for radius-type pools where curved sections are encountered between the pool wall and the pool floor.

Very large pools are cleaned with the tow-type vacuum cleaner, necessitating two operators, one on either side of the pool, who tow the vacuum cleaner back and forth across the pool floor.

Curved wall in lower portion of gunite pool eliminates usual cantilever footing



PIPING IN MADISON SQUARE GARDEN ICE ARENA

Madison Square Garden in New York has installed a new arena floor which incorporates an unusually large, concrete-embedded piping system to freeze ice for hockey games and ice shows. The new floor, which had to be — and was — completed in the record time of four weeks, featured the application of some 3000 threadless fittings in connecting about 13 miles of concealed refrigeration piping, spaced on 4 in. centers and laid under a terrazzo floor.

Black malleable fittings were used to connect, by silver brazing, 20- and 40-ft. lengths of 1¼-in. standard weight, galvanized wrought iron pipe.

According to the chief engineer at the Garden, Howard Post, the original base of the arena floor was used. This base consisted of fire-resistant hollow tile, reinforced concrete slab on structural iron, and corkboard — each of these components being about 4 in. thick. With this base as a foundation, the new work involved, first of all, laying two new layers of waterproofed tar paper over three layers retained from the old floor, and overlaying the tar paper with zinc sheeting. The galvanized wrought iron pipe formed the next section.

Requirements for the fittings were as stringent as those for the pipe. The threadless fittings are designed to permit use of the full pipe wall thickness, and, consequently, the full strength of the pipe, as no metal is lost by threading. There is said to be less pressure loss due to friction and turbulence in a piping system using *Flagg-Flow* brazed fittings than in a similar system using threaded fittings. The fittings had to withstand tremendous weights and considerable vibration, and they had to carry chromated brine for the freezing process.

Work on connecting the pipe was begun at the shop, where considerable prefabrication was done; 20- and 40-ft. lengths of pipe were joined by brazing with the threadless fittings. Even at this early stage, extensive testing of the pipe joints was undertaken in a "suds" test, where the joints were covered with soapy water, and air at 100 p.s.i. was forced through the pipe, causing air bubbles in the soap if leaks were present.

At the shop, too, the 40-ft. lengths of pipe, with their brazed fittings, underwent the first of a series of eight different handlings before they were finally laid on the arena floor.

There were some 20-ft. lengths prepared and sized on the spot at the Garden; these were used to connect gaps between 40-ft. lengths. Pipe, resting crosswise on 2-in. concrete supports which ran the length of the arena floor, was connected by the brazing technique when both the pipe and fittings were heated and silver alloy applied to complete the joint.

As soon as the first head of pipe was installed, hydrostatic pressure tests began, combined with the day-to-day exposure of pipe and fittings to ordinary stresses and strains. Lengths of pipe, 116 ft. long, were attached to each of two headers located on either side of the arena floor.

Hydrostatic pressure of 100 p.s.i. was then applied to the pipe attached to each header, as header installations were completed. With all the piping exposed as it was prior to the concrete pouring, there was sufficient opportunity for any weaknesses to show up.

Out of about 6000 joints made with the threadless fittings, only 181 were found to leak, and the majority of these were on the pipes prefabricated at the shop. According to the engineers, these were due chiefly to the eight different handlings these pipe lengths were subjected to. As these minor leaks showed up in the course of several days testing on the site, they were — with the exception of only three joints — easily repaired in short time by the reapplication of heat to the pipe and fitting. The three bad joints were replaced with new ones.

With the pipe installed on its supports, the arena floor was then ready for the next step of pouring the concrete. Some 3½ in. of base concrete were poured in and around the pipe, with wire screen imbedded in this base to form a bond for the terrazzo bed or scratch coat (¾ in. thick). The pipe was laid 1½ in. below the finished terrazzo floor. Before the job was considered complete, however, a sealing compound was applied over the terrazzo floor as a finishing process.

Operator applies silver alloy to braze threadless joint with piping in place

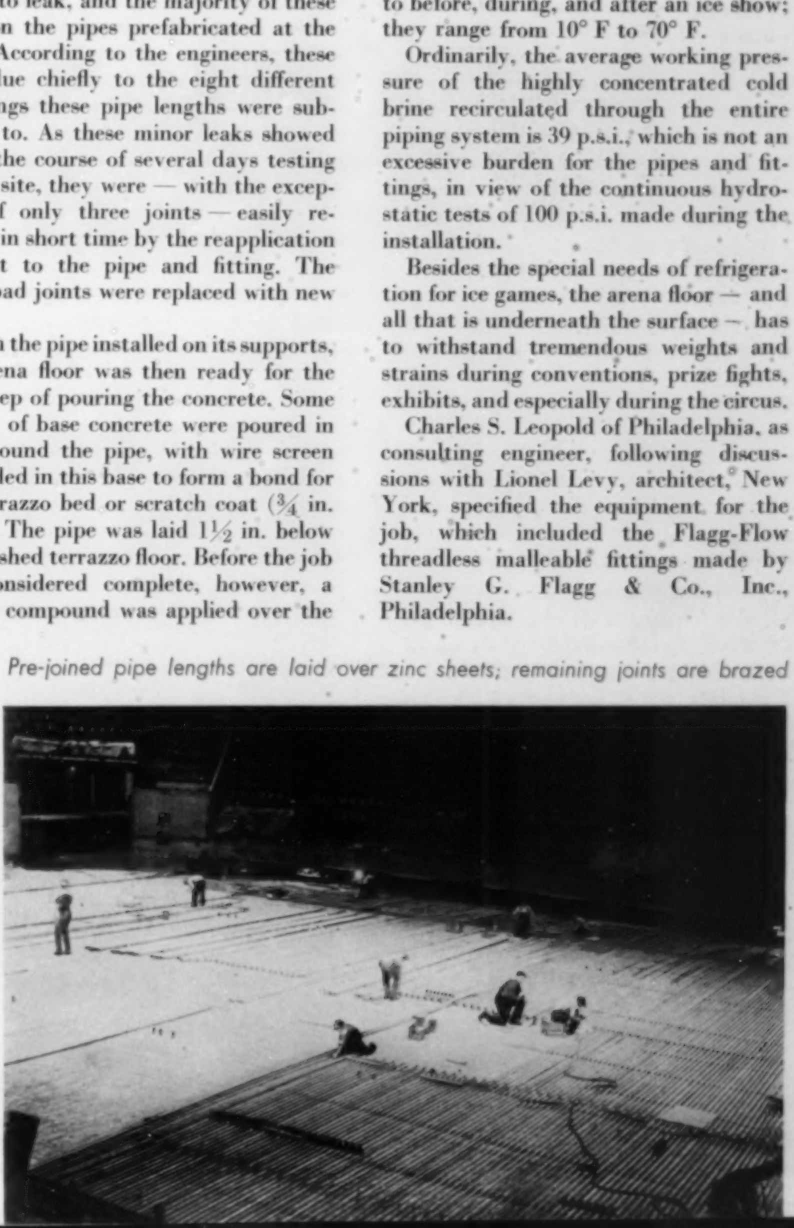
The arena floor takes a ½ in. coating of ice for hockey, and up to 1¼ in. of ice for the ice-skating shows. Possibly the most critical requirements, for pipe and threadless fittings, are the extremes of temperature the installation is subjected to before, during, and after an ice show; they range from 10° F to 70° F.

Ordinarily, the average working pressure of the highly concentrated cold brine recirculated through the entire piping system is 39 p.s.i., which is not an excessive burden for the pipes and fittings, in view of the continuous hydrostatic tests of 100 p.s.i. made during the installation.

Besides the special needs of refrigeration for ice games, the arena floor — and all that is underneath the surface — has to withstand tremendous weights and strains during conventions, prize fights, exhibits, and especially during the circus.

Charles S. Leopold of Philadelphia, as consulting engineer, following discussions with Lionel Levy, architect, New York, specified the equipment for the job, which included the Flagg-Flow threadless malleable fittings made by Stanley G. Flagg & Co., Inc., Philadelphia.

Pre-joined pipe lengths are laid over zinc sheets; remaining joints are brazed



PRODUCTS for Better Building

Photographic murals come in black-and-white, sepia, and are installed like wallpaper

PHOTOGRAPHIC MURALS

Through development of a special photographic reproduction process, enlargements for use as wall murals are now available at a surprisingly low cost, and can cover areas up to 6 ft. 8 in. by 15 ft. These *Foto Murals* are made by a new screenless process which is said to maintain all the quality of the original negatives.

Original Foto Murals are selected by a Subject Advisory Board consisting of the following: Julius Shulman, architectural photographer; Hubert A. Lohman, landscape photographer; Raphael S. Soriano, architect; Don Loper, American Institute of Decorators; John H. Denson, in charge of production.

The Foto Murals are produced in natural sepia or black-and-white, and can be installed like wallpaper by a competent paperhanger.

The manufacturer is building toward a library of 200 murals and is planning regular releases of six new murals every 90 days. Each mural is made up of 6 40 by 60 in. panels. Foto Murals of California, 672 S. Lafayette Park Place, Los Angeles.

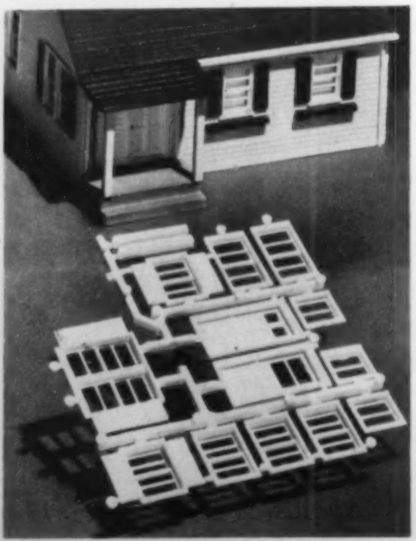
MODEL PARTS

Scale-model builders will now find available *Tenite* plastic castings of doors, door frames, windows, shutters, etc. for use in model house building. The castings are sold separately for houses of individual design or may be bought in kits with milled plywood bricks, siding, shingles, etc. in $\frac{1}{4}$- or $\frac{1}{2}$-in. scale for assembling into several styles of houses. The pieces come in white, to be painted later as desired. Architectural Model Materials, 4726 N. Winchester Ave., Chicago 40, Ill.

LIGHT WEIGHT ROOF PLANKS

Reinforced roof planks are now being made with the light weight material *Durisol* which consists of chemically-treated wood shavings combined with Portland cement and molded under pressure.

The roof planks are reinforced with steel rods, cement-coated on the top side and tongue and grooved on the long edges. The planks are available in $3\frac{1}{4}$ and $4\frac{1}{4}$ in. thicknesses (including $\frac{1}{4}$ in. cement coating), 16 in. widths, and in various lengths up to 8 ft. The manufacturer claims that the roof plank provides in one fireproof material: (1) roof deck for built-up roofing, (2) good insulation, and (3) a sound-proof ceiling.



Model house parts are made of plastic

A new Durisol plant at Beacon, N. Y. has been roofed with 40,000 sq. ft. of the reinforced planks. Installation cost has been reported to be 75¢ per sq. ft., including unloading and hauling to the top of the roof. The material cost is 45¢ per sq. ft. ($4\frac{1}{4}$ in. thickness). The Durisol plank ($4\frac{1}{4}$ in. thickness) weighs only 17 lb. per sq. ft.; thus its application is expected to effect savings in steel beams or other framework. Durisol, Inc., 420 Lexington Ave., New York, N. Y.

PLASTIC PARTITION BLOCKS

Plastic partition blocks resembling glass brick, but said to weigh only one-fifth that of the glass counterpart are available for use in the home, store or business office.

Plastic blocks form interior partitions

The blocks are made with interlocking lips, permitting non-load bearing walls to be built without the use of adhesives or clamps. In offices and stores this permits the use of temporary wall partitions that could be quickly assembled or taken down.

The blocks are $7\frac{3}{4}$ in. square, almost 4 in. thick, and weigh slightly more than a pound each. The two faces of the blocks have facets molded into the inside surfaces so that the finished block diffuses light.

Mastic cement or wood strips placed between the blocks can be used to make a permanent wall. Temporary installations are said to require only wood framework for bracing. The new blocks are recommended for interior installations only, at the present. Tests are re-

(*Continued on page 176*)

3

three mistaken ideas about Sound Conditioning...

mistake #1 **THAT SOUND CONDITIONING IS EXPENSIVE...**

The fact is: The cost of Acousti-Celotex* treatment in many installations hardly exceeds the cost of the usual surface that it replaces. And where a suspended ceiling may be specified, Acousti-Celotex sound conditioning can often be added for only a few cents more a square foot.

mistake #2 **THAT SOUND CONDITIONING IS A LUXURY...**

The fact is: Letters and figures from thousands of different applications show that, far from being a luxury, Acousti-Celotex sound conditioning is a sound investment . . . because it increases output, cuts down errors, and reduces employee turnover.

mistake #3 **THAT THE USE OF SOUND CONDITIONING IS LIMITED TO SPECIFIC AREAS...**

The fact is: More and more architects are specifying *overall* use of Acousti-Celotex sound conditioning for truly modern buildings—offices, hospitals, schools, banks, and other structures. Incidentally, *more sound conditioning has been done with Acousti-Celotex products than with any other material.*

YOU ARE INVITED to submit your acoustical problems to a trained sound technician—your nearest distributor of Acousti-Celotex products. His judgment gives you the benefit of the accumulated skill of a quarter century in sound conditioning . . . and experience in installing millions of square feet of Acousti-Celotex products. Write us today for the name of your nearest distributor in the United States or Canada. Sound conditioning is a sound investment.

*REG. U. S. PAT. OFF.

THE CELOTEX CORPORATION, CHICAGO 3, ILLINOIS

ACOUSTI·CELOTEX

TRADE MARK REG. U. S. PAT. OFF.

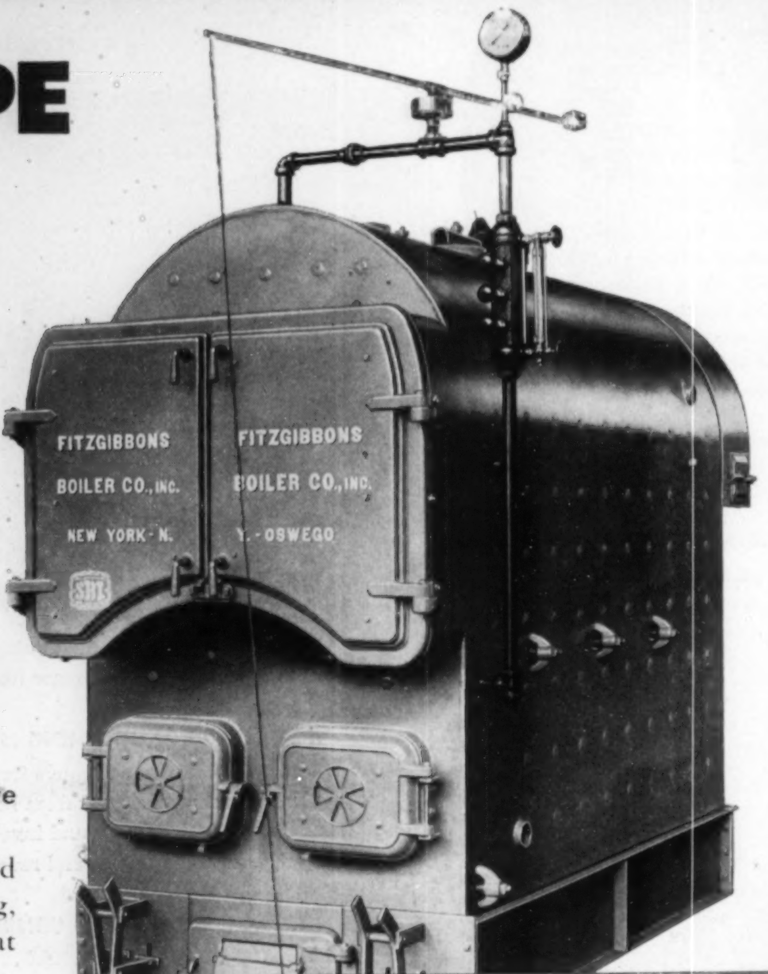
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE FITZGIBBONS BOILER

REG. U.S. PAT. OFF.

"D" TYPE



Isn't this what you're looking for in a boiler?

Are you looking for the ultimate in fuel economy?

The "D" Type with its rapid circulation, quick steaming, and scientifically designed heat transfer, will provide it. . . .

Looking for highest adaptability to firing with oil, gas, stoker or coal?

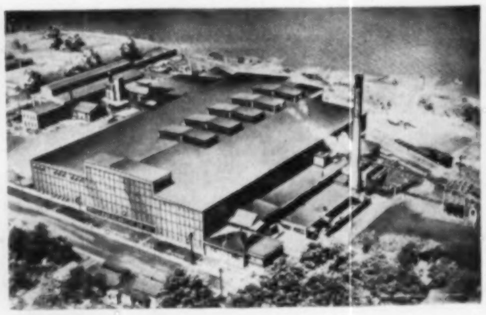
The "D" Type has that too, with its generous furnace volume and grate area. . . .

Looking for low cost maintenance?

The "D" Type is easy to clean and service. . . .

Looking for a boiler whose superiority is proved by thousands of installations, where selection is the result of most critical judgment? You will find the Fitzgibbons "D" Type Steel Boiler the choice of discriminating architects and engineers who want "the best in Steel Boiler Heat."

Put the "D" Type Catalog in your files—get a copy today.



THE FITZGIBBONS PLANT at Oswego, New York, modern in every respect, equipped throughout with the latest in cost-saving machinery, administered in accordance with production planning that stresses both excellence and economy, and manned with people among whom the tradition of 62 years of supreme quality in steel boiler building is never forgotten.

MOST ECONOMICAL IN FUEL
1886
THE FITZGIBBONS BOILER

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y.

Manufactured at: OSWEGO, N. Y. *Sales Branches in Principal Cities*

MEMBER
SBI
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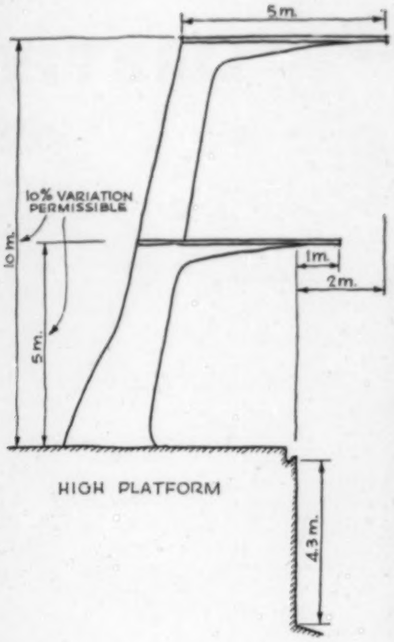
DECEMBER 1948 ARCHITECTURAL RECORD

SWIMMING POOL DESIGN DATA *For Competitive Swimming*

(Based on AAU Rules)

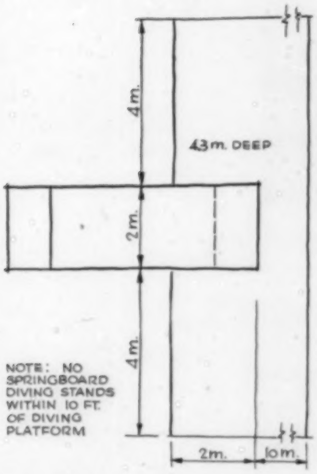
Drawings show dimensional requirements only, for other regulations see notes.


5m.
10% VARIATION PERMISSIBLE
10 m.
1m.
2m.
5m.
4.3m.

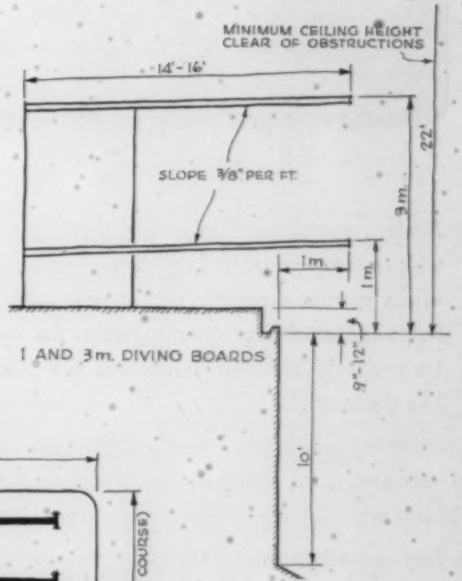
HIGH PLATFORM

Notes:

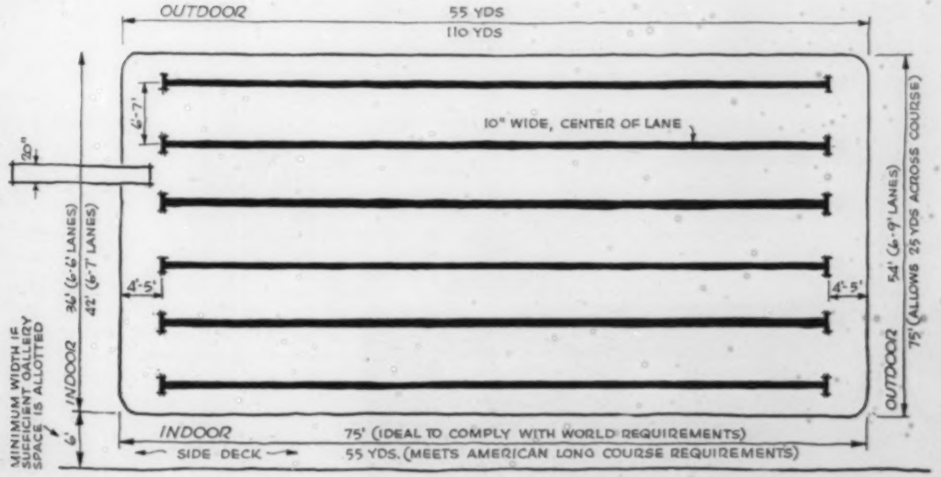
1. ***Pool Depths:*** 3 ft. (water depth) at the shallow end and descending to greatest depth under diving boards, not less than 10 ft., and under diving platforms, 4.3 meters (outdoor pool). For development of aquatic games, such as water polo, a minimum overall water depth of 6 ft. is recommended.
2. ***Pool Markings:*** Besides lane markings on pool bottom, it is recommended that finish distances such as 220 and 440 yds. be indicated on pool deck surface.
3. ***Ladders:*** removable or recessed ladders should be installed.
4. ***Gutter Drains*** should be provided with shut-off valves so that during competition, water may be maintained "at constant gutter level at the gutter lip."
5. ***High Diving Tower:*** the platforms must not move and shall be covered with coco matting. The back and sides of each platform must be surrounded by a hand railing, and each level shall be accessible from the ground by suitable stairs (not ladders).
6. ***Springboards*** should be made of wood and covered the whole length with coco matting.
7. ***Starting platform*** shall not exceed 2 ft. 6 in. in height from water for indoor competition and in open water not more than 5 ft. In either case it should not be less than 18 in.


4m.
4.3m. DEEP
2m.
4m.
2m.
10m.

NOTE: NO SPRINGBOARD DIVING STANDS WITHIN 10 FT. OF DIVING PLATFORM


MINIMUM CEILING HEIGHT CLEAR OF OBSTRUCTIONS
14'-16'
22'
SLOPE 3/8" PER FT.
3m.
1m.
1m.
9"-12"
10'

1 AND 3m. DIVING BOARDS


OUTDOOR
55 YDS
110 YDS
6'-7'
10" WIDE, CENTER OF LANE
20"
36' (6'-6' LANES)
42' (6'-7' LANES)
4'-5'
4'-5'
54' (6'-9' LANES)
75' (ALLOWS 25 YDS ACROSS COURSE)
OUTDOOR
INDOOR
MINIMUM WIDTH IF SUFFICIENT GALLERY SPACE IS ALLOTTED
6'
INDOOR
75' (IDEAL TO COMPLY WITH WORLD REQUIREMENTS)
SIDE DECK
55 YDS. (MEETS AMERICAN LONG COURSE REQUIREMENTS)

OPTICALLY ENGINEERED FOR INTEGRATED LIGHTING

Modern merchandising proves that store traffic can be stimulated and guided with cleverly contrasted lighting effects. Added foot-candles help merchandising areas attract shoppers across non-selling space. High-intensity spotlighting helps featured displays magnetize the eye. Yet the whole lighting plan must be properly blended to achieve the pleasant atmosphere that makes people like the store.

It's easy when you specify Day-Brite fixtures. Ceiling-mounted, suspended, recessed, cove, perimeter . . . all are optically engineered to function in perfect harmony with each other.

Day-Brite integrated store lighting can substantially increase the sales. Call your nearest Day-Brite representative or distributor.

GET NEW LIGHT ON PLANNED LIGHTING
THIRD INTERNATIONAL LIGHTING EXPOSITION AND CONFERENCE
CHICAGO
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019

IT'S EASY TO SEE WHEN IT'S
DAY-BRITE *Lighting*

Day-Brite Lighting, Inc.,
5465 Bulwer Ave., St. Louis 7, Mo.

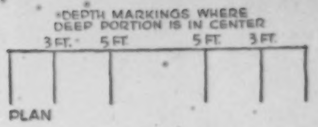
Nationally distributed
through leading electrical supply houses.

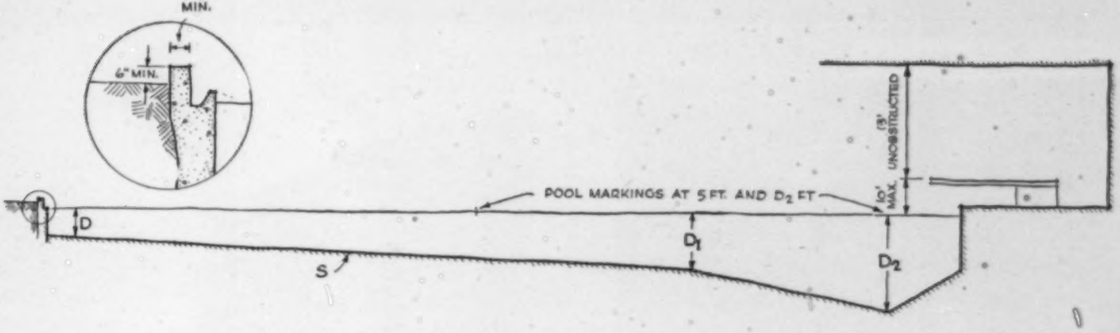
In Canada:
address all inquiries to Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

SWIMMING POOL DESIGN DATA

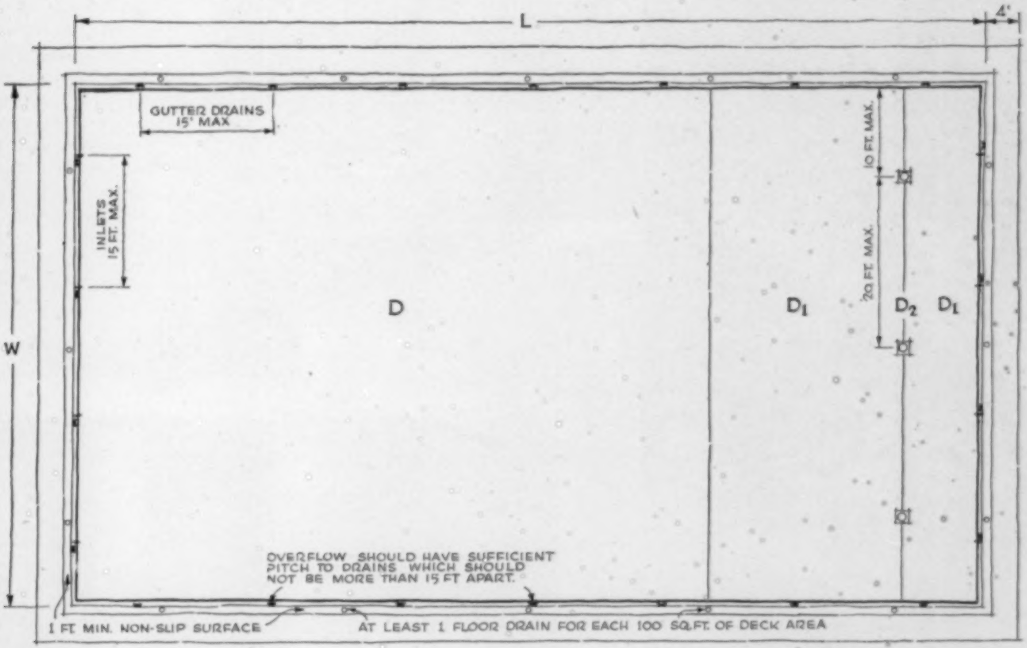
For Health and Safety

(Based on Report of American Public Health Ass'n)*


*DEPTH MARKINGS WHERE DEEP PORTION IS IN CENTER
3 FT.
5 FT.
5 FT.
3 FT.
PLAN


1'-0" MIN.
6" MIN.
D
POOL MARKINGS AT 5 FT. AND D_2 FT
13' UNOBSTRUCTED
10' MAX.
D_1
D_2
S

Curb is shown on section only


L
4'
W
GUTTER DRAINS 15' MAX
INLETS 15 FT. MAX.
10 FT. MAX.
20 FT. MAX.
D
D_1
D_2
D_1
OVERFLOW SHOULD HAVE SUFFICIENT PITCH TO DRAINS WHICH SHOULD NOT BE MORE THAN 15 FT APART.
1 FT. MIN. NON-SLIP SURFACE
AT LEAST 1 FLOOR DRAIN FOR EACH 100 SQ.FT. OF DECK AREA

LEGEND

D—no depth shallower than 3 ft.; shallower depths should be confined to wading pools

D_1—no depth shallower than 6 ft. in deep portion of pool

D_2—minimum safe water depth of 8 ft. for diving, and for diving platforms elevated 9 to 10 ft. above water, 10 ft. minimum

L—no length less than 60 ft.

W—width should be in multiples of 5, 6 or 7 ft.

S—slope where depth is less than 6 ft. should not be more than 1 ft. in 15 ft.

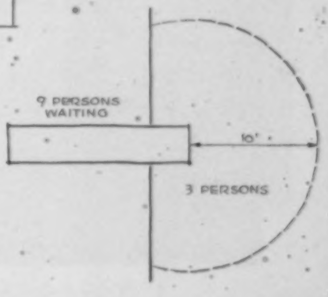
Notes:

Deck surfaces should have a slope of about ¼ in. per ft.

Overflow gutter should extend completely around the pool; open, roll-over or semi-recessed types of overflows should be used. Raised edges are not recommended for indoor pools. At outdoor pools where installed to facilitate cleaning, the raised edge should have dimensions shown on section to reduce danger of accidental tripping.

Outlets, Inlets: all pools should have an outlet at deepest point capable of draining pool in 4 hrs. or less. Openings of outlet grating should be at least four times the area of the discharge pipe to reduce suction currents. Where pool is wider than 20 ft., multiple outlets should be provided; where wider than 15 ft., multiple inlets should be used. When outlets are more than 5 ft. from end wall in rectangular pools with spoon-shaped contour, inlets should be placed at both ends of the pool. Outlets should be plainly marked by dark circle, unless outlet is of conspicuous coloring. At large pools with outlets near the center, inlets should be placed at specific intervals entirely around the perimeter of the pool.

Ladders or stairways should be located at one or both sides of deep end. If distance from bottom of pool to deck is more than 2 ft., a ladder or steps also should be placed at shallow end. Treads should be non-slip. Stairs, ladders or step holes should have a handrail on either side at the top leading out over deck. Stairs should not project into pool, but if used, should be recessed into the wall and deck.


9 PERSONS WAITING
10'
3 PERSONS

Proportioning Pool Area to Expected Load†

Allow the following areas for:

(1) swimmers—27 sq. ft. (assumes ⅓ swimmers on shore)

(2) non-swimmers—same as above for indoor and small outdoor pools; at large outdoor pools, allow 10 sq. ft. (assumes ½ bathers on shore)

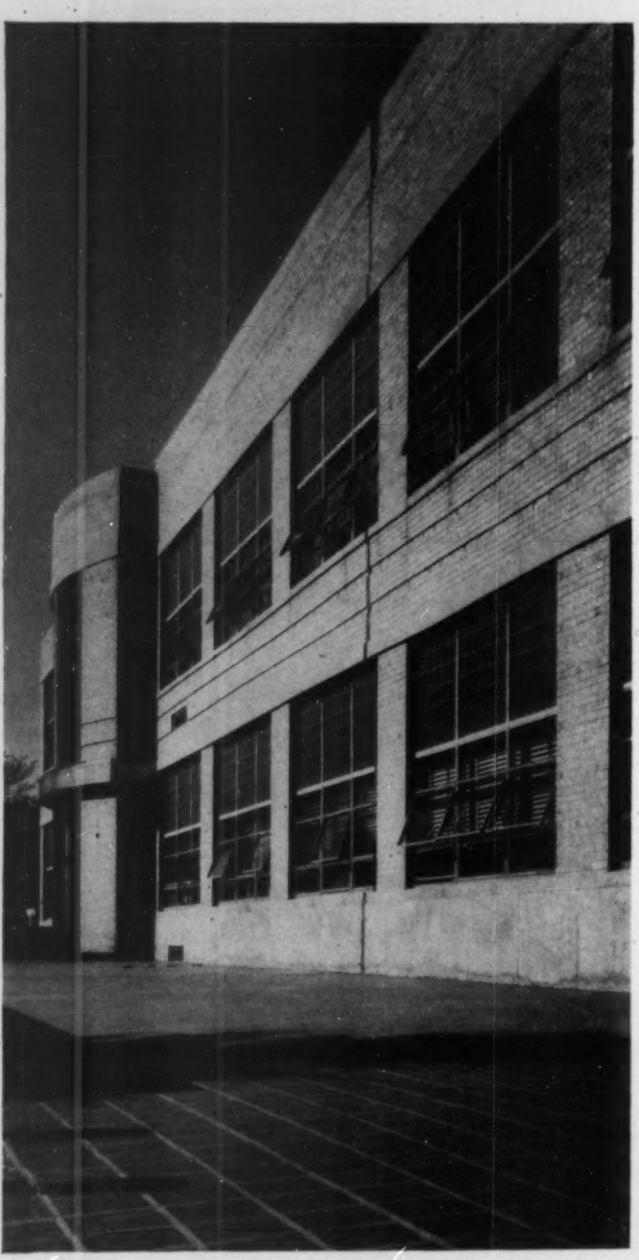
(3) diving—area shown in drawing, above, takes care of 12 persons

---

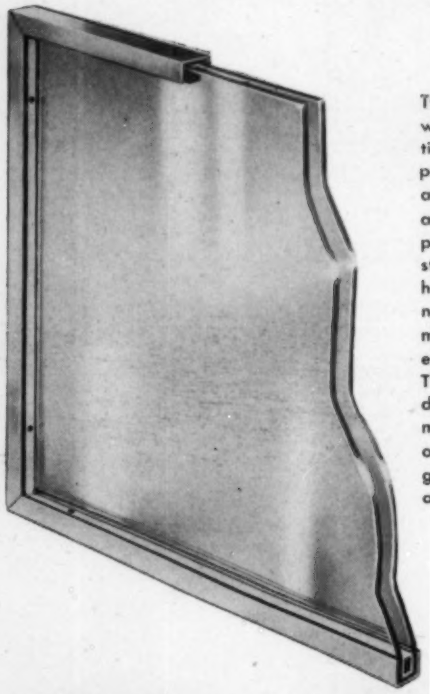
* Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places. *Some sections of the report are being revised, but have not as yet been adopted by the Association.*

† Bathing load based on safe bacteriological conditions not included.

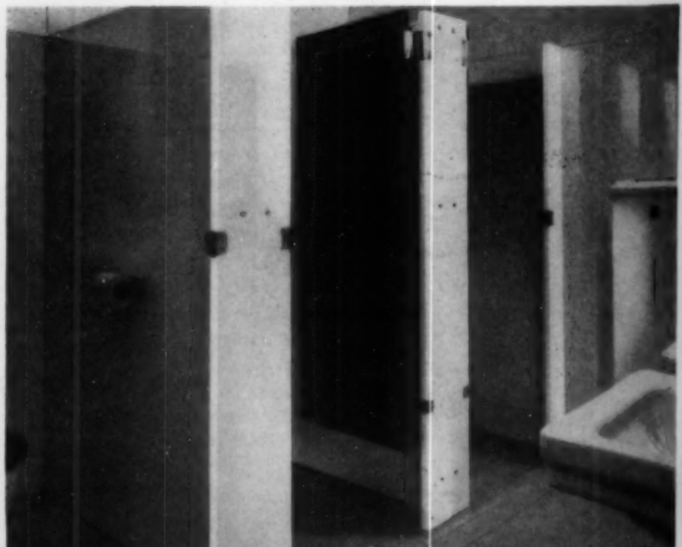
Distinctive uses of Glass



Pittsburgh Corning Glass Blocks can be used in numerous ways to add beauty and practicality to public buildings. They admit daylight abundantly while protecting privacy and shutting off unwanted views. They have excellent insulation properties. They harmonize perfectly with any style of architecture. Fourteen attractive patterns to choose from including the new Soft-Lite Prism B Blocks which facilitate light control on sun exposures. Architects: Overend & Boucher, Wichita, Kansas.



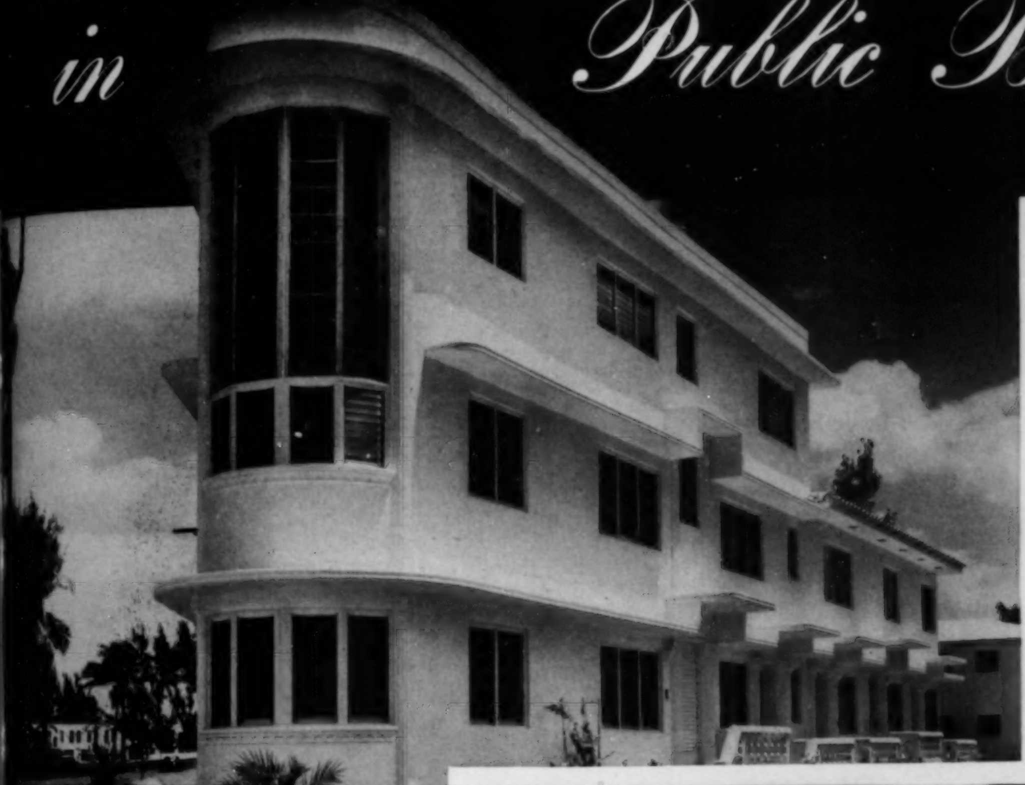
Twindow — "Pittsburgh's" window with built-in insulation, consists of 2 or more panes of Pittsburgh Glass separated by hermetically sealed air spaces, and enclosed in a protecting frame of stainless steel. The 2-pane unit cuts heat loss through windows nearly in half. With 3 or more panes, the insulating effectiveness is even greater. Twindow eliminates downdrafts near windows, minimizes fogging and frosting of panes. It contributes greatly to increased comfort and economy.



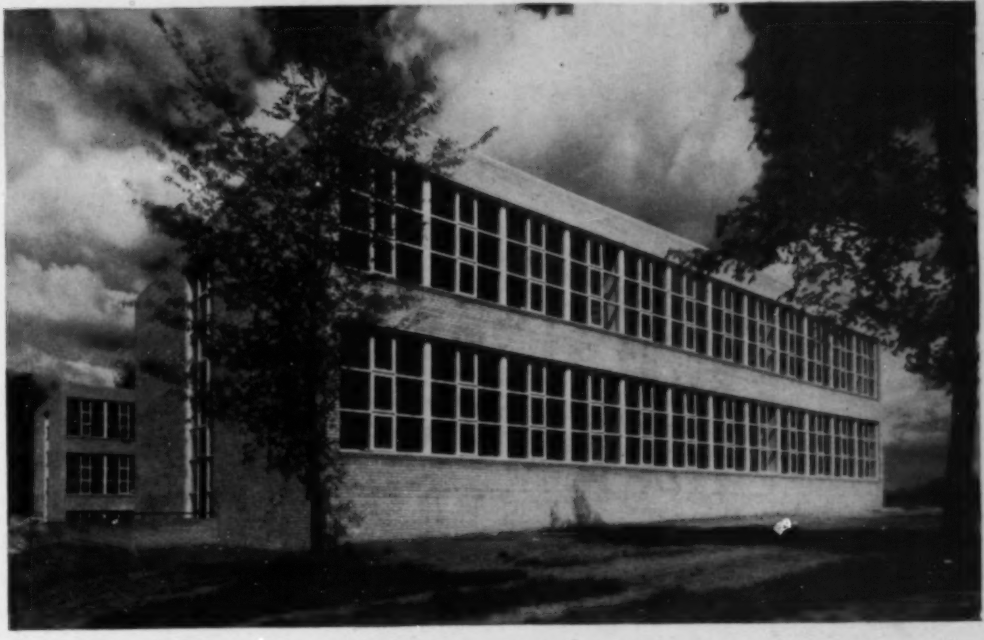
Every modern building has numerous places where colorful Carrara Structural Glass can add beauty and utility. In walls and partitions as shown here, washrooms . . . foyers . . . reception rooms, to name a few. The modern good looks of Carrara last indefinitely. It can be kept sparkling clean with infrequent wipings of a damp cloth. Available in 10 attractive colors. Architects: Janssen and Cocken, Pittsburgh, Pa.

PITTSBURGH PLATE GLASS COMPANY

in *Public Buildings*



Here's a new use of Solex, the heat-absorbing glass — Solex Venetian windows! They are easily handled — easily cleaned. They do not impair vision in any way. And they are water tight and air tight when closed. You'll find this new use of Solex highly practical for buildings in warmer climates. Architect: Pamarrow Turner, Miami, Florida.



Windows glazed with Pennvernon Window Glass admit abundant daylight into this modern school building. In addition, Pennvernon provides good, clear vision—has a brilliant, reflective finish on both sides of the sheet. You can depend upon Pennvernon to meet the most exacting sheet glass requirements. Architects: Long & Thorshov, Inc., Minneapolis, Minn.

We believe you will find much to interest you in our illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

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To put sparkle in Stucco . . .

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The sheer beauty of clean, crisp areas of stucco adds attractiveness and distinction to any building. And Atlas White Cement gives a pure brightness and enduring service to stucco finishes.

A matrix of Atlas White Cement not only enhances the patterns and hues of aggregates used in stucco, but it also sets off better, in contrast or blend, the color values of pigments and aggregates used in Terrazzo, Architectural Concrete Slabs and Cement Paints.

Atlas White Cement complies with Federal and ASTM specifications for portland cement. It has the same advantages for concrete and is used in the same way. Atlas White gives concrete a fresh, pleasing appearance. Cleaning is easy. Maintenance costs stay low.

For further information on the uses of Atlas White Cement, see SWEET'S CATALOG, Section 4B/2 and 13B/8, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

AR-C-25

FOR BEAUTY AND UTILITY
ATLAS WHITE CEMENT
FOR TERRAZZO, PAINT, SLABS, STUCCO

A UNIVERSAL ATLAS PRODUCT

"THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries*
Sunday Evenings—ABC Network

NEWS FROM CANADA

(*Continued from page 10*)

New Bank of Canada building under construction in Montreal. Fetherstonhaugh, Durnford, Bolton & Chadwick, Architects

cent. Increases in the United States were 47, 6 and 52 per cent, respectively.

Building costs recorded a jump in all countries. Between 1939 and 1947 prices of building materials rose as follows:

South Africa	103	per	cent
United States	98	"	"
United Kingdom	96	"	"
Australia	84	"	"
Canada	74	"	"
Sweden	70	"	"
New Zealand	52	"	"

The United States led in increase in building labor wage rates from 1939 to 1947 with 76 per cent. The United Kingdom followed with about 70 per cent and Canada was next with 55 per cent. The remaining countries showed boosts of less than 50 per cent.

Completion Time Unchanged

The Dominion Bureau of Statistics reports that 43,571 dwelling units were completed in Canada in the first eight months of 1948. Those finished in August took an average 6.2 months to build, a figure showing practically no change from the previous two months.

More Houses Built Here

More houses per capita are being built in Canada than in any other country in the world, with the possible exception of Sweden, D. B. Mansur, president of the Central Mortgage and Housing Corporation, recently told the Canadian Association of Real Estate Boards. At the same time he made it clear that despite accomplishments of the past few years there was still a great need for new houses. In 1946 and 1947 there were more new families formed than new houses built.

Comparison of figures issued by the Dominion Bureau of Statistics and the Bureau of Labor Statistics shows that Canada has only a slight edge on the United States. For the first eight months

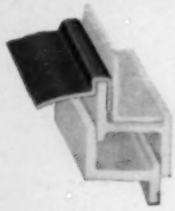
(*Continued on page 156*)

ABC's FOR ERECTING CECO *Steel Casements*

There's a right way to make every steel casement installation job easier and at a saving. But it's all in knowing how. That's why Ceco has prepared a complete and concise Erection Manual for the building industry. Here's a manual containing detailed data on the installation of steel casements. Easy-to-follow directions eliminate guesswork—diagrams show the right way to do the job. Note three examples given here—*How to apply a head drip—Testing the fit of ventilators—How to glaze.* All the necessary steps for proper installation are covered in Ceco's Manual. It will help you cut costs, do away with window damage, avoid loss of time. Write for free copy today. If you live in one of the western states, ask for special Pacific Coast Edition.

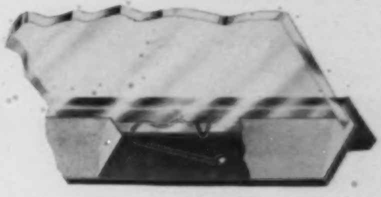
CECO STEEL PRODUCTS CORPORATION
General Offices: 5607 West 26th Street, Chicago 50, Illinois
Offices, warehouses and fabricating plants in principal cities

HOW TO ERECT



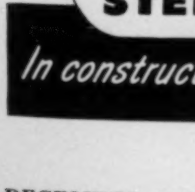
A Before erecting, apply loose head drip by placing it on top edge of casement frame, tapping it lightly to seat in place. No screws or bolts required. Where ventilators do not extend to casement head, no head drip is necessary.

B After erecting, before glazing, test fit of each ventilator by pushing it closed. Ventilator top should touch first while bottom extends about ½" from frame. Later, when hardware is installed, underscreen operator will draw in bottom of ventilator.

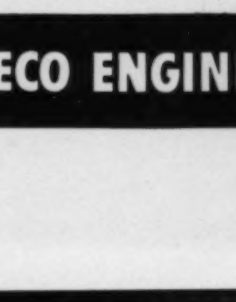


C In glazing, spread steel window putty or compound over glazing rabbets. Push glass firmly into position. Slip glazing clips in place and apply face putty or compound.

ONE OF MANY TYPICAL INSTALLATIONS



Concrete Block
Construction
with
steel fin



CECO STEEL®

FREE for you!

CECO STEEL PRODUCTS CORPORATION
5607 West 26th St., CHICAGO 50, ILL.
Please send FREE Manual No. 1014 on how to install metal casements.

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Address State
City

In construction products **CECO ENGINEERING** *makes the big difference*

Michaels

STORE FRONTS

Michaels store fronts, push bars, kick plates and thresholds of extruded bronze, aluminum, stainless steel and other metals meet virtually every requirement. Many stock designs are available. However, Michaels is set up to faithfully reproduce in metal the most intricate creations of discriminating architects. Michaels store fronts are unusually attractive and inviting. Specially designed metal letters of harmonizing or contrasting colors add to the effectiveness of these modern store fronts. ¶ Architects and builders are invited to consult us on all their requirements for ferrous and nonferrous building products. A partial list of Michaels products is shown below. If this list does not include the product you need, write us. Chances are we have it or can make it. Complete information on any or all products will be sent on request.

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Bank Screens and Partitions
Welded Bronze Doors
Elevator Doors
Store Fronts
Lettering
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Lamp Standards
Marquises
Tablets and Signs
Name Plates

Astragals (adjustable)
Stair Railings (cast and wrought)
Wrought and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Cast Thresholds
Extruded Thresholds
MI-CO Parking Meters
Museum Trophy Cases

The MICHAELS ART BRONZE Co., Inc., 234 Scott St., Covington, Ky.

Member of the National Association of Ornamental Nonferrous Metals Manufacturers

★

NEWS FROM CANADA

(*Continued from page 154*)

of 1948 Canada started construction of 60,500 new dwelling units, or about 47 per each 10,000 population. During the same period, United States began building 646,000 new units or about 45 per each 10,000 population.

Architects Among Top Earners

Architects and engineers were in the third highest income tax paying group in 1946, according to data released by the Department of National Revenue. They averaged $5984 in that year and paid an average tax of $1685. Doctors and lawyers were first and second, respectively, with incomes of $7466 and $6528. Poorest paid professional group were nurses with $1173.

Residential Costs Unchecked

The cost of house construction rose 4.9 per cent in the first half of 1948 compared to 12.6 per cent in the first half of 1947, Central Mortgage and Housing Corporation reports in the current issue of *Housing in Canada*, a quarterly summary dealing with major shelter trends.

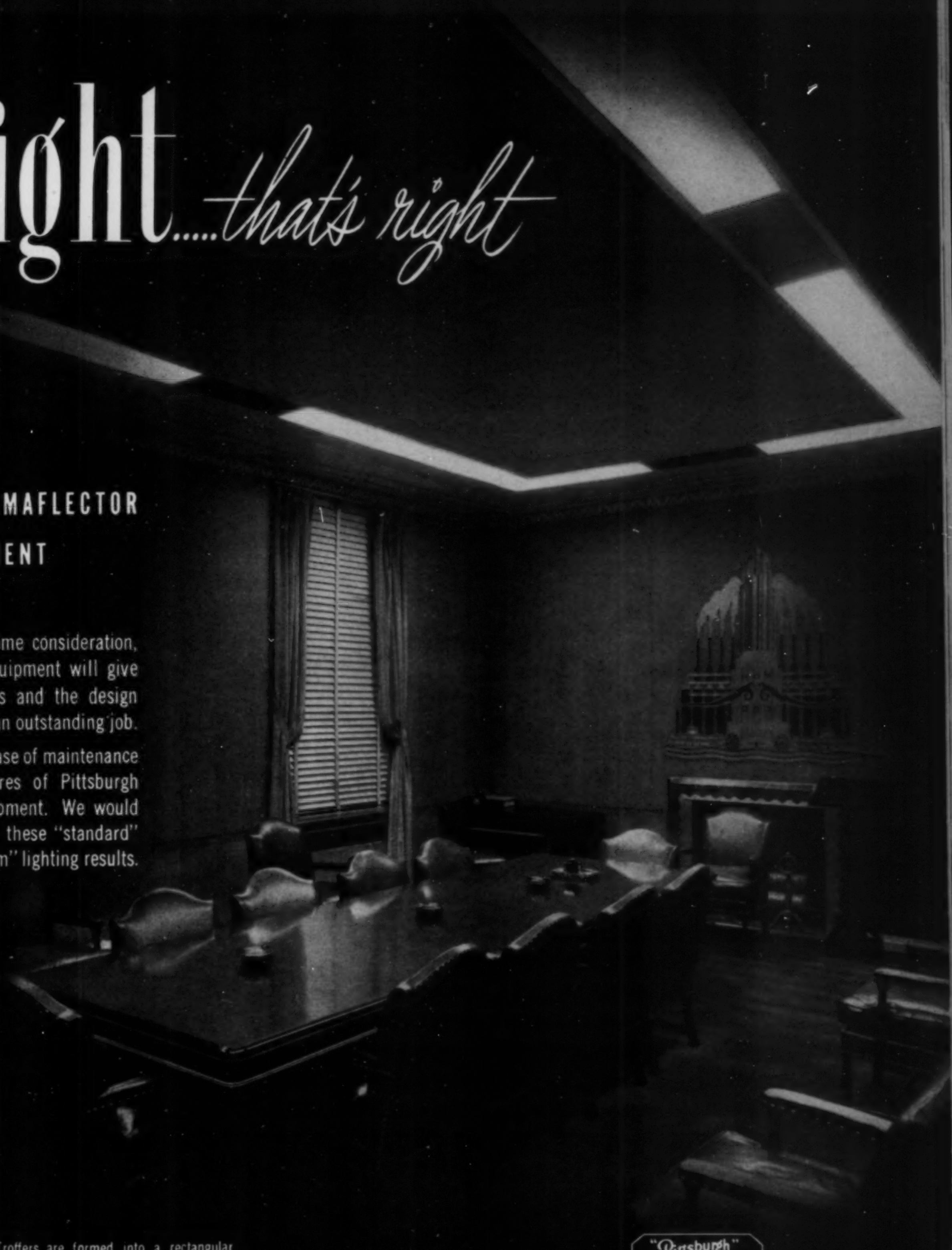
The over-all increase in the first half of 1948 comprised a 2.9 per cent rise in the composite index of building material wholesale prices and a 7.6 per cent rise in building labor wage rates. The cost of construction is also influenced by builders' profits and overhead, and workers' efficiency, but these factors are not taken into account in the combined index of materials and labor.

The report states that employment in the building industry has reached a record high, with 295,000 men engaged as of June 5, an increase of 41,000 over the corresponding period last year. At the same time, production of building materials has shown a substantial gain. Increases range from 3 per cent to over 100 per cent compared with the first half of 1947. A few items, notably in the roofing and insulating materials field, are meeting all supply demands, resulting in a cutback of production.

"Real" Shortage Non-Existent?

Canada's housing shortage is a local lack, rather than a national deficit, according to the Financial Post, a leading business newspaper. It produces Government statistics to show that by mid-1948 there was a house or self-contained apartment for every 4.3 persons in the country. This is the lowest figure recorded since the Dominion census was first taken. It compares with 4.4 in 1941, 4.9 in 1921, 5.2 in 1901 and 5.7 in 1881.

(*Continued on page 158*)



for Light*.....that's right*

PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT

When good lighting is a prime consideration, Pittsburgh Permaflector Equipment will give you the illuminating effects and the design patterns you require to do an outstanding job.

Low installation costs and ease of maintenance are other important features of Pittsburgh Permaflector Lighting Equipment. We would like to tell you more about these "standard" units which give you "custom" lighting results.

A PERMAFLECTOR PORTRAIT
The Board Room
Federal Reserve Bank
Pittsburgh, Pennsylvania

Pittsburgh Permaflector Universal Troffers are formed into a rectangular pattern in conjunction with the air conditioning units. The troffers are equipped with hinged Alba-lite glass-panel closures. Multiple switch control provides three levels of illumination.
Electrical Contractor: The Howard P. Foley Company.

"Pittsburgh"
Permaflector

WANT THE FULL STORY ABOUT OUR LIGHTING EQUIPMENT?

Send for your copy of Catalog 48-F. It contains complete information, specifications and other data on the troffers used above and other Pittsburgh Permaflector Fluorescent Units and Companion Incandescent Equipment.

PITTSBURGH REFLECTOR COMPANY

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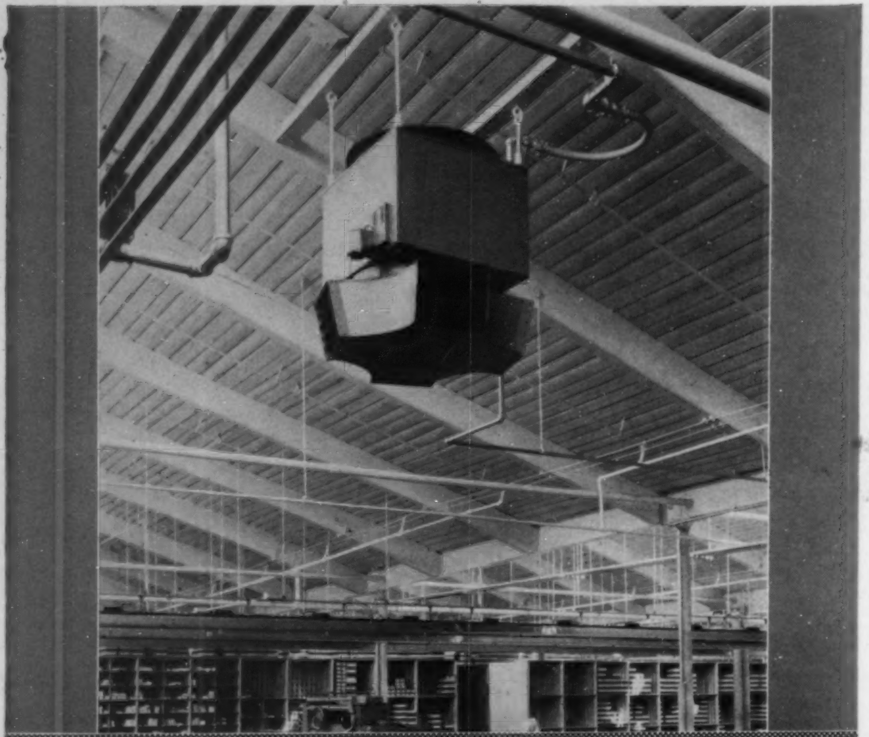
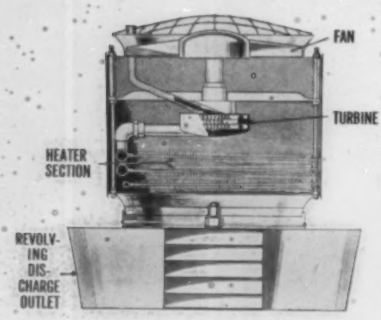
MANUFACTURERS OF FLUORESCENT & INCANDESCENT LIGHTING EQUIPMENT
Permaflector Lighting Engineers in all Principal Cities

PITTSBURGH PERMAFLECTOR LIGHTING EQUIPMENT IS DISTRIBUTED BY BETTER ELECTRICAL WHOLESALERS EVERYWHERE



Wing Turbine Driven Heater uses exhaust from fan turbine for heating



Where live steam of any pressure is available, it is possible to heat a plant advantageously by installing Wing Turbine Revolving Unit Heaters. The fan is driven by a Wing Turbine and the turbine exhaust is piped into the heater section. Electric motor and electric power are eliminated as the source of power (steam) is also the source of heat. The revolving discharge outlet distributes the heat to the working level, flowing around obstructions and to remote corners. Workers are pleased with the sensation of fresh, live, invigorating warmth. Write for descriptive bulletin or specific details.

L. J. Wing Mfg. Co. 151 W. 14th Street, New York 11, N.Y.
Factories: Newark, N. J. and Montreal, Canada

WING

Wing
Revolving
UNIT HEATERS

NEWS FROM CANADA

(*Continued from page 156*)

The Post comments, "It is true that the number of persons per family is not what it was in the early days . . . but even after all allowances are made, a house or apartment for every 4.3 persons means that throughout Canada as a whole we are getting close to the point where the housing supply can be termed normal."

Planning Progress Reported

Ontario is the only Canadian province possessing a Department of Planning and Development. The Minister is the Honorable Dana Porter. In addressing a recent conference of the Community Planning Association of Canada (Ontario Division) Mr. Porter announced that, since his Department was formed three years ago, it had approved more than 2000 subdivision plans, comprising nearly 80,000 residential building lots. He stated that 125 municipalities, within whose boundaries live three million people, are now actively engaged in planning activities.

The Community Planning Association is a citizens' organization which receives some financial assistance from the Dominion Government. It exists to promote public understanding of—and public participation in—planning. During the convention private citizens exchanged opinions with professional planners, municipal officials and representatives of the provincial government. Problems relating to stabilization of land values, rights of property owners, planning legislation and allied matters were discussed in a series of well attended study groups.

Among other distinguished speakers was Mr. Frederick P. Clark, Planning Director of the Regional Plan Association, New York. He expressed the opinion that planning limited by municipalities is outdated. "Local problems," he declared, "can only be dealt with properly within the framework of a regional plan."

No "Pork Choppers" Here

The Detroit Free Press sheds light on one reason why bricklaying in the U.S. offers emolument sweet enough to attract swarms of Canadian masons (ARCHITECTURAL RECORD, November, 1948).

The newspaper says, "Apprenticeships are non-existent in the bricklayers' union unless you have a pull or are a relative of a union pork chopper. With a fine understanding of the law of supply and demand, the union czars have a monopoly for themselves. Lots of people

(*Continued on page 160*)

ONE-PIECE BONDED*

What does it mean to you?

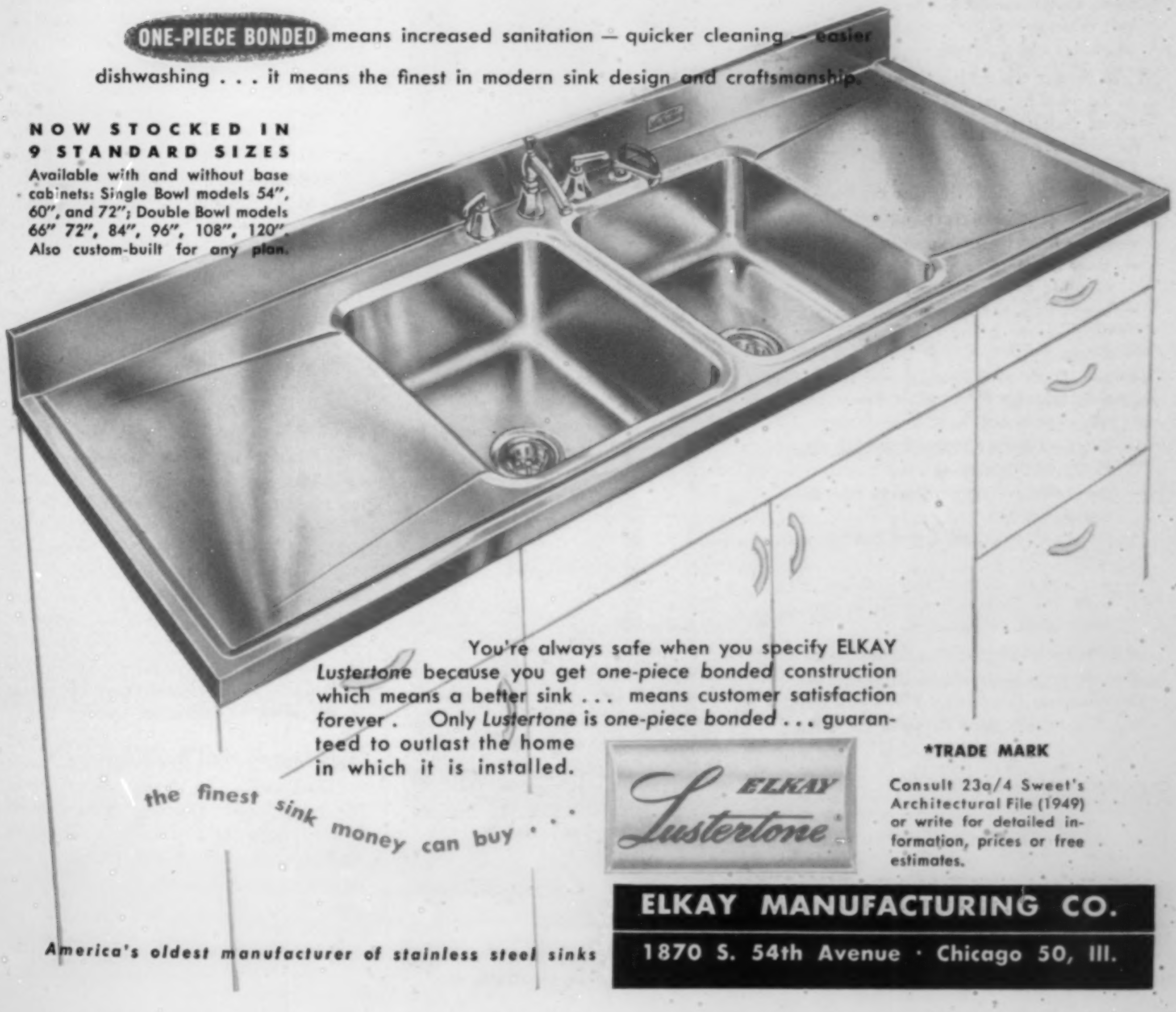
ONE-PIECE BONDED means the permanent, approved method of *Stainless Steel Sink* construction that guarantees leak-proof, trouble free satisfaction always.

ONE-PIECE BONDED means *seamless* construction of *heavier* 18 gauge metal that allows all-welded fabrication . . . eliminates joints, crevices and bacteria breeding seams.

ONE-PIECE BONDED means greater beauty. More eye-appeal . . . stronger buy-appeal because the smooth lustrous beauty of ELKAY *stainless steel* provides a finer sink without a blemish — without a distracting seam or joint.

ONE-PIECE BONDED means increased sanitation — quicker cleaning — easier dishwashing . . . it means the finest in modern sink design and craftsmanship.

NOW STOCKED IN
9 STANDARD SIZES
Available with and without base cabinets: Single Bowl models 54", 60", and 72"; Double Bowl models 66" 72", 84", 96", 108", 120". Also custom-built for any plan.



You're always safe when you specify ELKAY *Lustertone* because you get *one-piece bonded* construction which means a better sink . . . means customer satisfaction forever. Only *Lustertone* is *one-piece bonded* . . . guaranteed to outlast the home in which it is installed.

the finest sink money can buy . . .

ELKAY
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***TRADE MARK**

Consult 23a/4 Sweet's Architectural File (1949) or write for detailed information, prices or free estimates.

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America's oldest manufacturer of stainless steel sinks

Modern living ....

. . . calls for a Shower Cabinet in the bathroom

So much personal comfort and satisfaction can be obtained at so low a comparative cost that a shower cabinet has become one of the best values in making homes more desirable to owners and prospective purchasers.

A shower cabinet is a natural companion to the other fixtures in the present day bathroom, and is recognized by architects and builders as one of the strongest features for classifying a home as modern in both the higher priced and lower cost brackets.

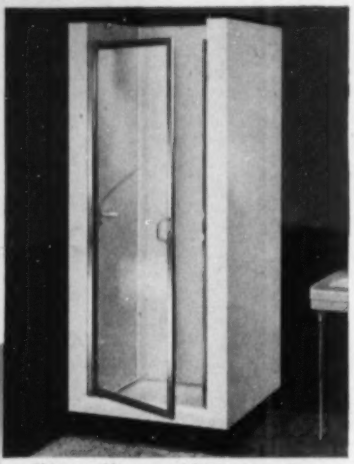
FIAT SHOWER CABINETS

— make houses more saleable.
— make the menfolk happy and are a source of pride to the housewife.
— are in harmony with other modern features in the home that make for easy living.
— add an air of distinction and luxury to the bathroom even when lower priced units are installed.

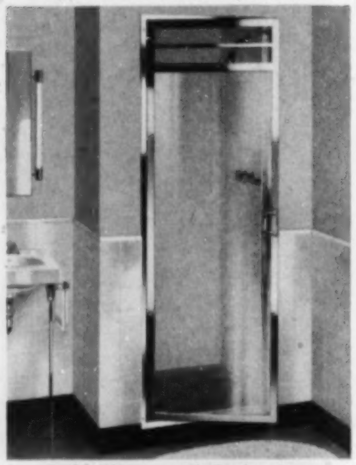
— THERE IS A FIAT SHOWER MODEL TO FIT EVERY BATHROOM —

— the low cost Skipper Shower with Neptune Glass Door.
— the medium priced Cadet Shower with Zephyr Door.
— the highest class shower cabinet ever built, the Commodore, suitable for the finest luxury installation.

A complete catalog with specifications of all Fiat Shower Cabinets is available in Sweet's Architectural File section 24b/1 and Building File section 6a/6 or write for catalog.



Skipper Shower with Neptune Door



Cadet Shower with Zephyr Door

Commodore — 2000-C

Fiat Metal Manufacturing Company
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LONG ISLAND CITY 1, N. Y. LOS ANGELES 33, CALIF.

In Canada Fiat Showers are manufactured by Porcelain and Metal Products, Ltd., Orillia, Ont.

NEWS FROM CANADA

(*Continued from page 158*)

want bricks laid; by trimming down the labor supply and limiting the number of bricks that can be laid in one day, the bricklayer increases the demand for his services to such an extent that people will pay him $27 a day in desperation."

The "pork chopper" dictatorship over apprentices does not seem to exist in Canada. Here anyone who wishes to learn bricklaying or any other trade simply applies to the Department of Labor in the province in which he resides. The Department then endeavors to find an employer who will sponsor him in a training course. No difficulty in placing embryo building mechanics is reported.

NHA Lending Flourishes

Lending operations under the National Housing Act continued at a high level during August, according to a news release from Central Mortgage and Housing Corporation. Loan approvals during the month amounted to $9,436,280 for 1755 new dwelling units, more than double the total of $3,426,300 for 732 units in August, 1947.

During the first eight months of the year, NHA loans amounting to $67,849,620 were approved for 13,028 units as compared to $36,834,050 for 7702 units in the first eight months of 1947.

Institute Marks Birthday

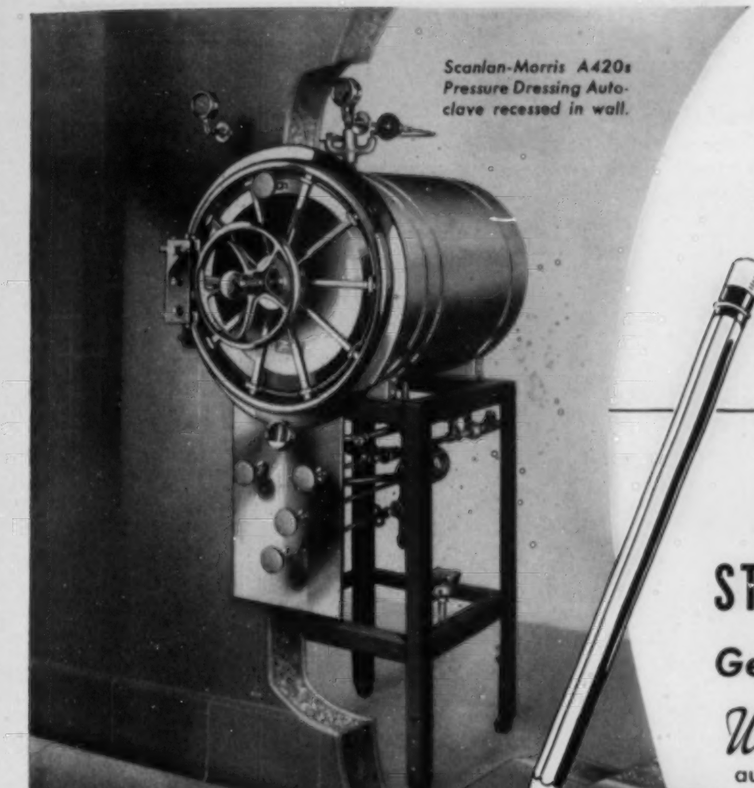
Canada's Institute of Professional Town Planners recently celebrated its first birthday. Formed "to promote the science and art of town and community planning," its membership is drawn from the ranks of architects, municipal officials, engineers, university professors and persons engaged in social studies.

The Institute plans to issue a monthly news letter and a quarterly journal during the coming year. The news letter will serve to keep planners aware of items of current interest. The journal will assist them in charting development schemes for the Dominion's fast growing cities and towns. Information concerning subscriptions may be obtained from Dr. E. G. Faludi, Secretary-Treasurer, Institute of Professional Town Planners, 24 Bloor St. E., Toronto, Ont.

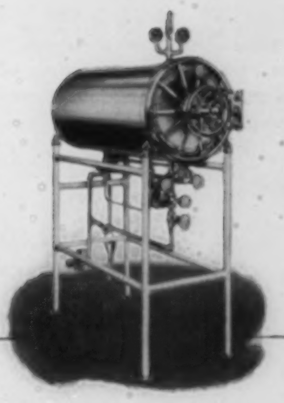
Gets Out of Nail Business

Distribution of Nails by Central Mortgage and Housing Corporation (ARCHITECTURAL RECORD, October, 1948) ceased on November 30. The nails represented an additional supply made possible by diverting some of the tonnage of steel rod normally used in manufacturing barbed wire and fencing. The

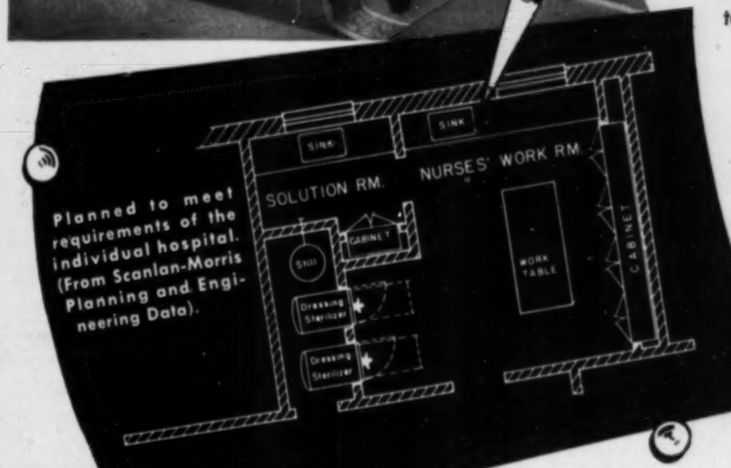
(*Continued on page 162*)



Scanlan-Morris A420s Pressure Dressing Autoclave recessed in wall.



Scanlan-Morris A420s Pressure Dressing Autoclave



Planned to meet requirements of the individual hospital. (From Scanlan-Morris Planning and Engineering Data).

For authentic information on
STERILIZERS FOR HOSPITALS
Get Scanlan-Morris Technical Data

Which will serve best—exposed autoclaves, recessed autoclaves, or recessed 2-door autoclaves (from unsterile to sterile room)?

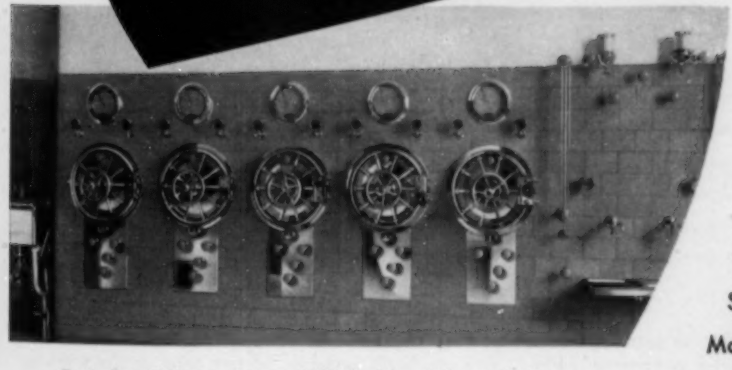
When planning new hospitals, any estimate of the number, sizes and types of sterilizers required should, of course, be based on bed capacity, amount of surgery and obstetrics to be done, and the general layout of the building. Consideration should also be given to possible future additions to the hospital.

You will find much helpful information in the Planning and Engineering Data section of the catalog of Scanlan-Morris Sterilizers.

Scanlan-Morris sterilizing equipment is used exclusively not only in some of the largest American hospitals but also in many smaller institutions. More than 40 years' experience in manufacturing and installing sterilizers and other major hospital equipment, and in contacting superintendents, surgeons, hospital engineers and architects, qualify our Technical Sales Service Department to supply valuable data and assistance in proper planning for sterilizers. This department will gladly supply complete engineering data, suggestions and recommendations upon receipt of estimated requirements and a set of floor plans or a sketch of the proposed building. This service is available to architects without obligation.

Similar service is available also on Scanlan-Morris Surgical Lights and Scanlan-Morris Recessed Cabinets.

Mail the coupon for the latest catalogs.



Typical sterilizing room in a 3000-bed hospital completely equipped with Scanlan-Morris sterilizing apparatus.

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Send: ☐ Catalog and Planning Data on Sterilizers; ☒ Catalog of Surgical Lights; ☐ Catalog of Recessed Cabinets.
(Please attach professional card or letterhead)

Name____________________
Address____________________
City__________ State__________ AR

NEWS FROM CANADA

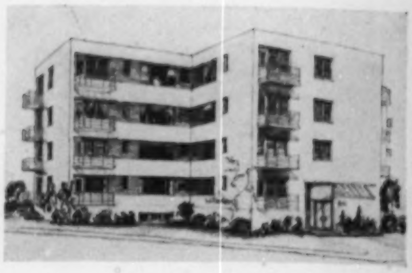
(Continued from page 160)

measure, initiated by the Dominion Government, served to assist non-priority residential builders until their requirements could be satisfied through regular channels.

Municipal Finances Studied

At a recent provincial-municipal conference held in Toronto, delegates demanded that the Ontario Government take over the hospital, child welfare and relief costs now borne by cities and towns. Their brief states that "After full study of the effect of social services upon the municipal financial resources of this modern era, it is submitted these social services have been one of the major factors contributing to the burden on municipal taxpayers for services not properly municipal services."

It appears likely that a commission on provincial-municipal relations will be appointed to study how a more equitable distribution of taxes can be evolved to pay for the cost of social services.



One of two 4-story, radial-wing, 32-suite apartment buildings under construction in Montreal. Henry E. Greenspoon, Architect

The need for "a more equitable distribution" may be seen in a study recently made by Professor C. A. Curtis of Queen's University, an international authority on the subject of taxation. Professor Curtis points out that real property provides no less than 85 per cent of municipal revenues in Ontario, the balance coming from provincial grants, fees and revenue-producing services. He estimates that in 1946 only 23 per cent of the total tax levies were expended on services to real property, whereas 31 per cent went to education, 11 per cent to public health, hospitalization and other social services. General administration and debt charges accounted for the rest.

Subsidized Housing Opposed

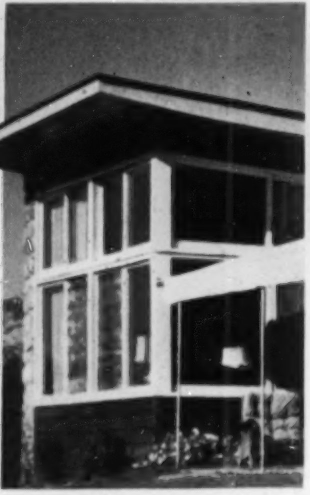
The main resolution passed at the recent annual convention of the Canadian Association of Real Estate Boards at Hamilton, Ontario, expressed realtors' opposition to "any subsidized housing project which requires a municipality to share in the subsidizing." A loophole would, however, permit municipalities to manage such projects if requested to do so by a senior government.

Steel Imports Curtailed

The vast re-armament program undertaken by United States is having Canadian consequences. In good neighborly fashion, the Dominion Government has announced that it is imposing a voluntary limitation on imports of iron and steel during the last quarter of this year. Imports are to be reduced to 200,000 tons, a cut of 18 per cent in the average quarterly level for last year.

The curtailment is particularly severe in the case of structural steel items. It amounts to about 35 per cent compared with 1947. Import permits are now required for all shipments from United States of angle-irons, beams, channels, columns, girders, joists, tees and zees. But however irksome it may be, the necessity for this control is well recognized by the construction industry.

Create Striking Effects..



BY USING THE NATURAL BEAUTY OF THE WOOD

There's real beauty in natural wood — a beauty that Cabot's Creosote Stains capture and enhance! Whether you want bold contrasts or soft blends, you'll find a Cabot Stain that will perfectly fit your color scheme . . . from brilliant hues to weathering browns and grays. And because only pure pigments are used, colors *stay* fresh and true.

With a content of 60% — 90% creosote oil, the most effective wood preservative known, Cabot's Creosote Stains fully protect clapboards, shingles and wood siding against decay and termites. *They cost 1/3 as much as good paint and are much more economical to apply!*

Write today for color card and free booklet containing complete information about the advantages of Cabot's Creosote Stains.

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PROVIDENCE WAREHOUSE WITH 22,000 SQ. FT. FLOOR AREA USES CHASE COPPER TUBE FOR RADIANT HEATING!

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EASY TO BEND
LOW COST
SOLDERED FITTINGS
LONG LENGTHS
LIGHT IN WEIGHT
LONG LIFE
SMALL DIAMETERS

Pouring concrete over 12,000 feet of Chase Copper Tube. Installation also included 5500 feet for office ceiling and 1200 feet for sidewalk and drive snow removal. Architect: Charles A. Maguire & Associates, Providence, R. I. Building Contractor: A. F. Smiley Construction Co., Pawtucket, R. I. Heating Contractor: J. F. Higgins Heating Co., Providence, R. I.

BIG jobs . . . little jobs, Chase Copper Tube has the advantages that mean fast, economical installation . . . dependability! For instance: you reduce costly, time-consuming connections because Chase Copper Tube is available in coils up to 100 feet long. Its flexibility means quick, easy hand-bending! And no fittings are needed at bends.

In floor installations, as illustrated, there's no need for accurate leveling of Chase Copper Tube. For ceilings, its light weight makes this overhead work easier . . . and its small diameter does not require extra plaster for coverage. Send for instructive, informative booklet that discusses radiant heating in theory and practice. Write Dept. AR128.

Send for **FREE** book "Suggestions for Designing RADIANT PANEL HEATING with Copper Tube."

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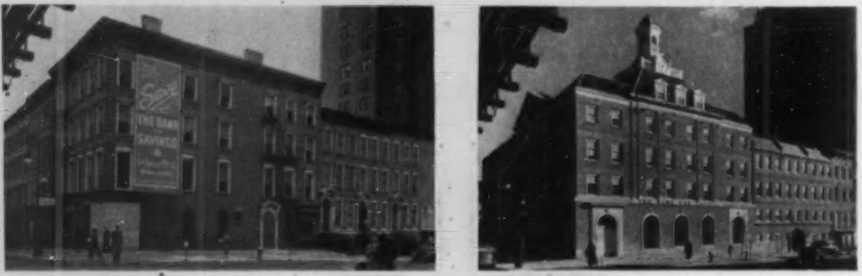
THE RECORD REPORTS *(Continued from page 22)*



From the five old-law tenements at the left Louis E. Ordwein created the garden apartments at the right, winning an A.I.A. Apartment House Medal (see A.R., Aug., 1948, p. 168)

SURE CURE FOR
Garage Door Grief
Richards-Wilcox
nine ninety nine
999
TURNOVER GARAGE DOOR HARDWARE

The tricks of wind and weather often result in annoying grief with old-fashioned swinging garage doors. Now, with R-W 999 Garage Door Hardware, it's easy and economical to use those same doors for the trouble-free convenience of overhead operation. They always open easily, stay "put" and close readily . . . weathertight. Garage door grief is eliminated entirely by this modern, new overhead door convenience—the R-W "nine-ninety-nine" hardware line. Conversion of ordinary doors to the overhead way with R-W 999 Hardware is simple, swift, and inexpensive. Everything needed is delivered, *complete*, packed to specific order in one convenient carton, ready for installation and operation.

In your plans for building or modernization, specify R-W 999 Hardware and be sure of lasting and complete satisfaction. For detailed information about R-W 999 Garage Door Hardware, simply call or write the nearest Richards-Wilcox office for free folder.

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OVER 68 YEARS

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"A HANGER FOR ANY DOOR THAT SLIDES"
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Branches: New York Chicago Boston Philadelphia Cleveland Cincinnati Washington, D. C. Indianapolis St. Louis New Orleans Des Moines Minneapolis Kansas City Los Angeles San Francisco Denver Seattle Detroit Atlanta Pittsburgh

Louis, Kiel Auditorium, St. Louis, Mo.; sponsored by the Home Builders Assn. of Greater St. Louis.

Feb. 28–March 4: 1949 Spring Meeting and A.S.T.M. Committee Week, Hotel Edgewater Beach, Chicago, Ill.

COMPETITIONS ANNOUNCED

American Academy in Rome

The Association of the Alumni of the American Academy in Rome has announced its 22nd annual competition program "to encourage collaborative effort among students of painting, sculpture, architecture, and landscape architecture." It is open to teams composed of students of three or more of the above-named arts.

This year's problem is an island recreation center containing a theater, boating and club house building, bathing and casino building, restaurant, 10 shops, and several sandwich bars. Two prizes of $200 and $100 each are offered to the winning teams.

For further particulars address the American Academy in Rome, 101 Park Ave., New York 17, N. Y. The contest closes on April 1.

Princeton Fellowship

The Lowell M. Palmer Fellowship in Architecture, carrying a stipend of $700, has again been offered by Princeton University. The Fellowship is for advanced study of architecture at Princeton, and is open to holders of a Bachelor's degree who are United States citizens who were less than 27 years old on October 1, 1949.

For complete information address the School of Architecture, Princeton University, Princeton, N. J. Applications must be made by March 25, 1949.

CHICAGO CLUB REOPENS

In response to the many requests that the Chicago Architectural Club resume its position in the field of architectural education and advancement, the directors of the Club have voted to return to active status and have leased quarters at 431 N. Clark St., Chicago. The Club was organized as a sketch club in 1885 and incorporated in 1887.

(Continued on page 166)

CLARK C. WRIGHT, A.I.A.

Clark Chittenden Wright, 68, member of the Chicago architectural firm of Carr and Wright, died on October 12 following a brief illness.

Born at Libertyville, Ill., Mr. Wright attended Beloit College Academy, Armour Institute, and the Art Institute of Chicago. In 1915 he entered the architectural office of George C. Nimmons. He was later admitted to partnership and the firm name was changed to Nimmons, Carr & Wright. Two years ago the firm became Carr and Wright, Inc.

Photo shows one of four units of Clinton Hill Apartments, Brooklyn, N.Y. Harrison, Fouilhoux & Abramovitz, architects. J. Di Stasio & Co., engineers. Starrett Bros. & Eken, Inc., builders. The apartments are owned by The Equitable Life Assurance Society of the United States.

Actual bids demonstrate economy of CONCRETE FRAME and FLOOR CONSTRUCTION

Competitive bidding repeatedly has shown that the use of concrete frames and floors saves on construction cost. This was demonstrated again in the above 14-story unit of the Clinton Hill Apartments in Brooklyn.

Taking advantage of the economy of continuity in concrete construction, the designers used flat slab floors of uniform thickness (without drop panels) as continuous frames and prismatic concrete columns without caps. This design eliminated most interior beams and gave architects greater freedom and flexibility in planning room layout by permitting them to place partitions of uniform height wherever needed.

Concrete frame and floor structures are firesafe, last a lifetime and cost little to maintain. That is *low-annual-cost* construction that protects investments. It is ideally adapted to apartments, schools, hospitals, hotels and office buildings for its economy applies equally to tall buildings or those of six stories or less.

Write for helpful free booklet, "Continuity in Concrete Building Frames." Distributed only in United States and Canada.

PORTLAND CEMENT ASSOCIATION · **Dept. 12-8, 33 W. Grand Ave., Chicago 10, Ill.**

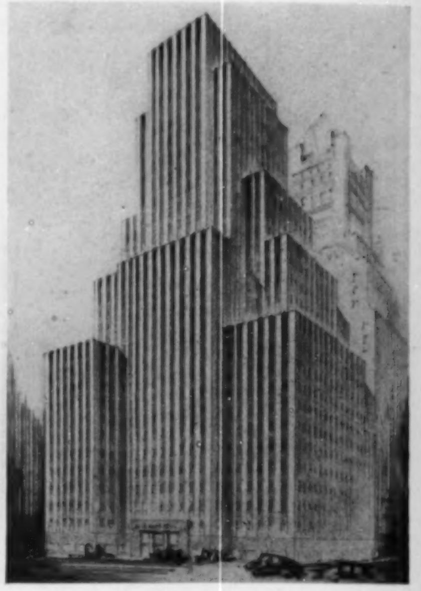
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work.

BUILDING NOTES

Telephone Laboratories Addition

The second large building unit of the Bell Telephone Laboratories at Murray Hill, N. J., is now partially occupied. Designed by Voorhees, Walker, Foley & Smith, Architects, with the cooperation of the Bell Laboratories' engineers, the new unit, like the earlier one, is designed around a 6-ft. module to achieve maximum flexibility. Each module contains a window, radiator, artificial lighting and, in the laboratory areas, provision for supplying the multiplicity of services required for laboratory work such as electricity, gas, air, hydrogen, oxygen, hot and cold and distilled water, etc. There are no permanent partitions except around stair wells, elevator shafts and washrooms. Space subdivision is accomplished by movable, prefabricated panels of double steel sheets, 3 in. apart, filled with rock wool.

The new four- and five-story building is joined to the original one by a 120-ft. bridge, under which are driveways and a sheltered bus terminal. All the main buildings are of brick, with limestone and granite trim.



New home office for Mutual Life Insurance

Mutual Life Insurance Building

Ground was broken early in October for a $9,500,000 home office building for the Mutual Life Insurance Co. Designed by Shreve, Lamb and Harmon Associates, Architects, the 25-story building is being erected on the block front from 55th to 56th Sts. on the east side of Broadway, New York.

Pan American Union Building

A four story building to be used entirely for administrative purposes is now half completed in Washington, D. C. Designed by Harrison, Hough, Livingston and Larson, Architects, of Philadelphia, the $2,400,000 complement to the present Pan American Union will be faced with the traditional black-veined Georgia marble of neighboring federal structures, and will have an identifying red-tiled, Spanish type roof. Located on a 16,330 sq. ft. site, with a 174 ft. frontage on Constitution Ave., the new building's 71,000 sq. ft. of floor space will be capable of integrating in one place the various departments that are scattered throughout the city at present.

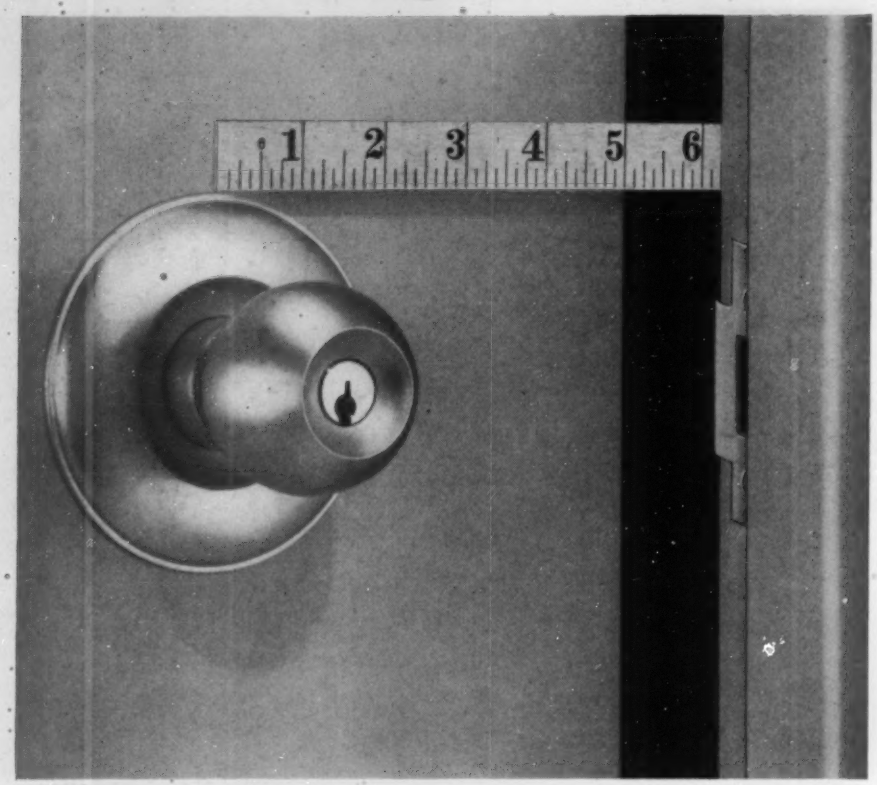
ERRATUM

In the Universal Corporation, Dallas, page advertisement in the October issue of the Architectural Record, featuring the Herman Hospital and Herman Professional Building, Houston, the architects credited should have read Kenneth Franzheim and Hedrick & Lindsley, Associate Architects.

(News continued on page 168)

a new dimension in Door Locks

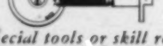
Schlage 5″ Backset



Prevents barked knuckles

Schlage's 5″ backset gives ample clearance between the knob and the door stop. It also provides a new freedom of design for architects.

To lengthen backset the Schlage way, just add this connecting link.



No special tools or skill required. Only two holes to bore.

See Schlage in Sweets Architectural File

Locks by
SCHLAGE

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LOCK COMPANY
SAN FRANCISCO NEW YORK

ORIGINATORS OF THE CYLINDRICAL LOCK

Washrooms rank as one of the four most important factors in good working conditions—according to a survey of workers from 400 plants.

In these hands... better employee relations

The kind of washrooms a company provides has a definite bearing on its employees' attitude towards the "front office." Don't *you* resent a washroom that isn't *right?*

Clean, modern, *carefully planned* washrooms create good impressions. You're doing your client a real service by making sure his washrooms *are* right.

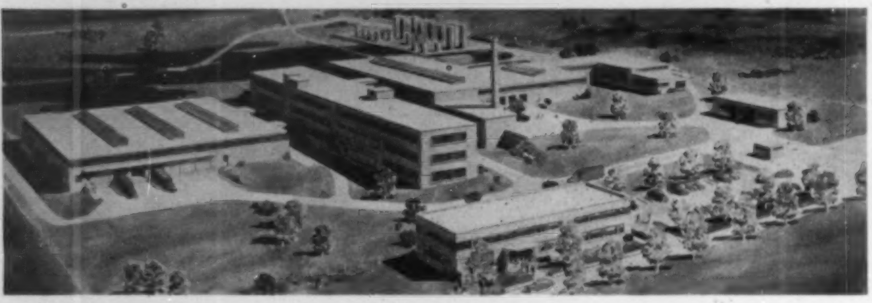
ScotTissue Towels are a symbol of the right kind of washroom. Include ScotTissue Towel cabinets in your washroom planning. Send for our free booklet that's filled with helpful suggestions, well-tested plans and diagrams (by an architect specializing in this field) for large and small washrooms, locker rooms, etc. Write to the Scott Washroom Advisory Service, Chester, Pa.

Trade Marks "ScotTissue," "Washroom Advisory Service," Reg. U. S. Pat. Off.

SCOTTISSUE TOWELS

Symbol of the right kind of washroom

(Continued from page 166)



New Socony Paint Products mill, Raritan, N. J. Walter Kidde Constructors, Inc., engineers

Planning a NEW SCIENCE BUILDING?

Layouts of equipment and plumbing details should be completed *before* building construction is started, to avoid excessive installation costs. Kewaunee engineers are experienced and can offer assistance without cost or obligation.

Some of the New Science Buildings that are being equipped in 1948 and 1949 with Kewaunee Equipment are:

- University of Michigan, Ann Arbor, Michigan
- University of Illinois, Urbana, Illinois
- University of Florida, Gainesville, Florida
- University of Washington, Seattle, Washington
- University of Arizona, Tucson, Arizona
- University of West Virginia, Morgantown, W. Va.
- Drake University, Des Moines, Iowa
- Wayne University, Detroit, Michigan
- Southern Methodist University, Dallas, Texas
- Michigan State College, East Lansing, Michigan
- Calvin College, Grand Rapids, Michigan
- Franklin & Marshall College, Lancaster, Pa.
- St. Michaels College, Winooski Park, Vermont

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OFFICE NOTES

Offices Opened, Reopened

Benjamin Hoffman, A.I.A., announces the opening of his office for the practice of architecture in the Renshaw Bldg., 9th St., Pittsburgh 22, Penn.

Mr. Leon Hyzen, architect and industrial designer, has moved his offices to 1129 N. Dearbon St., Chicago, Ill. He is extending his practice to include store design.

The Lloyd-Thomas Co., Appraisal Engineers, has reopened its New York Office, 84 William St., New York 7.

Charles Macklin, Architect and Structural Engineer, has opened his office at 206 S. 4th St., Springfield, Ill.

Paul McCobb Design Associates have established new design offices at 150 E. 35th St., New York 16, N. Y. The firm will specialize in designing stores as well as merchandise in the home furnishings field.

James S. Payne has opened an office for the general practice of architecture at 182 S. Church St., Salem, Ore.

New Addresses

The following new addresses have been announced:

Bain, Overture, Turner & Associates, A.I.A., Architects, 908 7th Ave., Seattle 4, Wash.

Budd Contracting Corp., 350 Fifth Ave., New York 1, N. Y.

J. Herbert Burmeister, Architect, 89-30 161st St., Jamaica 2, N. Y.

Albin Gustafson Co., Electrical Contractors, 220 E. 51st St., New York 22, N. Y.

Salem Engineering (Canada) Ltd., 1525 Bloor St. W., Toronto, Canada.

Sigman & Farkas, Consulting Engineers, 150 Broadway, New York 7, N. Y.

George L. Walling, Architect, 304 W. 8th St., Austin, Texas.

New Firms, Firm Changes

J. Theodore Blomquist, Architect-Engineer-Consultant, is now associated with Frank A. Hecker and Eugene J. Maniscalco, Associated Architects, 332 River St., Hackensack, N. J.

Headed by Henry C. Day, chief industrial engineer, a new general engineering and process design division of the Wigton-Abbott Corp., has been formed to complement the company's present general engineering and construction services.

James C. Gardiner has announced the association of Robert B. Price in the practice of architecture, 200 Broadway Theater Bldg., Tacoma 3, Wash.

Theodore Hartman has announced his severance from the partnership of Howe and Hartman. He has established his own office for the general practice of architecture in the Goetz Bldg., 1702½ 11th St., Monroe, Wis.

(Continued on page 170)

Plywood Announcement!

1 **A New, Simplified A-B-C System of Grade Identification for Douglas Fir Plywood Is Now in Effect.**

2 **Douglas Fir Plywood Is Now Produced in Accordance with New U. S. Commercial Standard CS45-48.**

In order to simplify the identification of Douglas fir plywood grades, manufacturers have adopted a new A-B-C system of grade-marking.

Plywood is manufactured in two distinct types—Exterior and Interior. Within each of these two types are several appearance grades. These grades—of either Exterior or Interior type—are determined by the appearance quality of the *outer plys* (face and back veneers).

Now, there are just four such qualities of veneer—A, B, C and D, in order of appearance quality.

Highest in appearance quality — "A" veneer — is that formerly known as "Sound." "B" veneer is a new quality, also known as "Solid," which presents a firm, solid surface, free from open defects. "C" and "D" veneers may contain certain restricted defects which do not affect panel serviceability, and are used where appearance is not important.

GRADES OF EXTERIOR-TYPE

EXT-DFPA•A-A (Sound 2 Sides)
EXT-DFPA•A-B (Sound 1 Side, Solid Back)
EXT-DFPA•PlyShield•A-C (Sound 1 Side)
EXT-DFPA•Utility•B-C (Solid 1 Side)
EXT-DFPA•Sheathing•C-C
EXT-DFPA•Concrete Form•B-B (Solid 2 Sides)

GRADES OF INTERIOR-TYPE

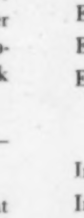
Interior•A-A•DFPA (Sound 2 Sides)
Interior•A-B•DFPA (Sound 1 Side, Solid Back)
PlyPanel•A-D•DFPA (PlyPanel Sound 1 Side)
PlyBase•B-D•DFPA (Solid 1 Side)
PlyScord• C-D•DFPA (Sheathing)
PlyForm•B-B•DFPA (Solid 2 Sides)

The new U. S. Commercial Standard CS45-48 for Douglas fir plywood becomes effective November 1, 1948. The Commercial Standard booklet contains complete data on the new system of grade identification* and new grade-trademarks, and sets forth more stringent performance requirements for Exterior-type plywood. A free copy will be mailed to any point in the United States. Send the coupon below.

*As the new A, B, C, D veneer designations are being introduced, industry grade-trademarking of panels provides for designation either by letters or by previous terminology. Thus, as listed above, grademarks on panels may read either "PlyShield A-C" or "PlyShield SoIS" (Sound 1 Side).

Douglas Fir PLYWOOD

LARGE LIGHT STRONG *Real Wood* Panels



DOUGLAS FIR PLYWOOD ASSOCIATION
Tacoma 2, Washington

GENTLEMEN: Please send me my copy of the new U. S. Commercial Standard CS45-48, which contains new grade designations and new grade-trademarks for Douglas Fir Plywood.

NAME
Firm
Title
Street
City Zone State

THE RECORD REPORTS *(Continued from page 168)*

Bryan W. Nolan and Robb W. Moore, Architects, have established the firm of Nolan and Moore, with offices at 301 Oklahoma Natural Bldg., Oklahoma City.

The election of Charles C. Whittelsey as vice president in charge of construction activities has been announced by Ford, Bacon & Davis, Inc., Engineers and Constructors with offices in New York, Philadelphia, Chicago, and Los Angeles. Mr. Whittelsey has also been elected executive vice president of the firm's subsidiary, Ford, Bacon & Davis Construction Corp., with headquarters at Monroe, La.

ELECTIONS, APPOINTMENTS

Peter W. Eller has been elected chairman of the Board of Governors of the Building Trades Employers' Association of New York City. Mr. Eller, vice president of the Thompson Starrett Co., general contractors, will complete his fourth term as president of the B.T.E.A., December 31. As the second permanent chairman of the board since the B.T.E.A. was founded, Mr. Eller becomes the top administrative official in the multi-million dollar building industry in Metropolitan New York. A recognized authority in labor-management relations, Mr. Eller will take office January 1, 1949, succeeding Christian G. Norman who retired last month after serving as chairman for 28 years.

W. J. Goodwin, jr., of Des Moines, Iowa, was elected president of the Structural Clay Products Institute at its convention at French Lick Springs, Indiana. Mr. Goodwin, the youngest man ever to hold office in the industry, and president of the Des Moines Clay Products Co., succeeds Roy A. Shipley of Pittsburgh. Rand Rodgers, president of the Alton Brick Co., in St. Louis, replaces Joseph A. Brown, Baltimore, as vice president of the Institute. W. Gardner Long, Boston, and Joseph Cermak, Washington, D. C., will continue in office as secretary and treasurer of the Institute.

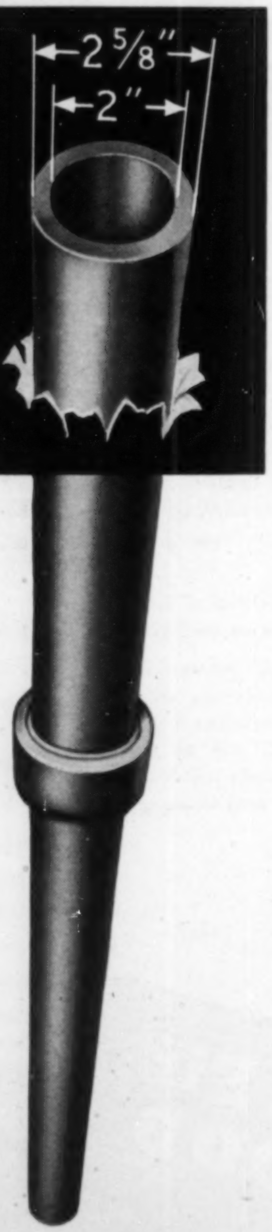
Nolan B. Mitchell has been designated chief of the Fire Protection Section in the Building Technology Division of the National Bureau of Standards. In this capacity he will direct the NBS research on problems of fire protection and fire resistance of building materials, especially as they relate to design and construction of buildings.

N. R. Patterson, president of the Patterson Steel Co., Tulsa, Okla., was elected president of the American Institute of Steel Construction at the Institute's annual convention early in October. Elected to serve with him were: R. D. Wood, Chicago, first vice president; John E. Jackson, Pittsburgh, treasurer. L. Abbott Post, New York City, executive vice president, and M. Harvey Smedley, New York City, secretary, were re-elected. B. E. Bushnell of Jacksonville, Fla. was named to the board of directors.

George N. Sieger, President of the S-M-S Corp., of Detroit, has been elected president of the American Welding Society for the year 1948–1949. A national authority on resistance welding, Mr. Sieger has held many offices in the Society, serving as its first vice president in 1947–1948. He is a member of the American Society for Metals, and the Society of Automotive Engineers.

Herbert L. Tigges, second vice president of the American Society of Tool Engineers, has accepted an assignment as adviser and consultant to the National Securities Resources Board in connection with the work of the manufacturing division. His immediate work with the Board will pertain to the placement of "phantom" war orders in the machine tool field.

H_2SO_4 won't eat through THIS PIPE before 6571 A.D. !



If you install some 2" Duriron pipe, today, to handle 10% or higher concentrations of sulfuric acid, you won't get complaints because of corrosion before the 66th century. (And by that time you won't care.)

It will take 4,625 years for corrosive H_2SO_4 to eat through 5/16" of Duriron. That gives you a good idea of the resistance of this high silicon iron alloy to practically all corrosives.

EVIDENCE: Here are the results of tests made on Duriron over a period of 120 days with unagitated solutions of most of the corrosives in commercial and laboratory use.

Solution	Per cent of Loss	Depth of Corrosion in Inches, per Year
95% Sulphuric acid	.007	.0000206
25% Sulphuric acid	.016	.0000463
10% Sulphuric acid	.025	.0000685
70% Nitric acid	.006	.0000188
10% Nitric acid	.000	.0000000
5% Hydrochloric acid	1.162	.00324
90% Acetic acid	.006	.0000188
87% Phosphoric acid	.006	.0000188
25% Phosphoric acid	.010	.0000292
7.9% Oxalic acid	.014	.0000412
9.1% Picric acid	.005	.0000137
25% Copper sulphate	.008	.000024
27% Ammonium chloride	.026	.0000977

For information on the application of Duriron pipe for waste acid disposal systems write for bulletin 703.

DC-11

THE DURIRON COMPANY, INC.
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DURIRON
ACID PROOF
DRAIN PIPE

DC-11

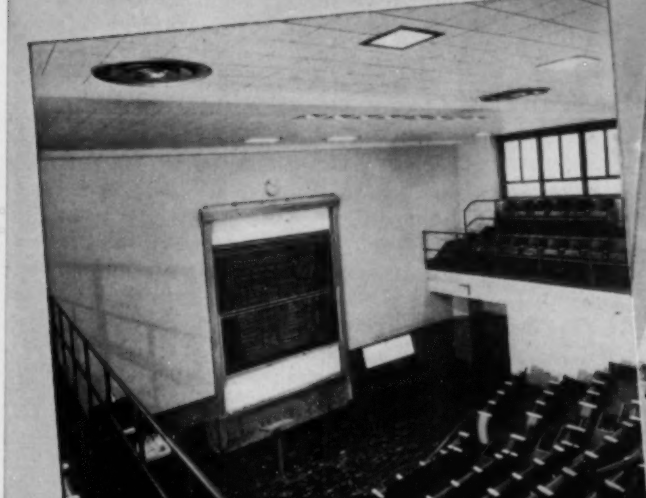
ANEMOSTAT
DRAFTLESS AIR DIFFUSERS
in the Hartford Hospital

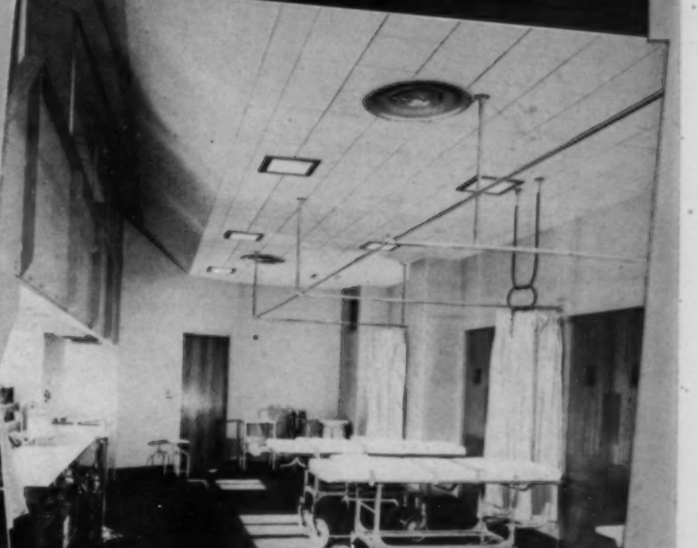
For comfort, for health, for safety, conditioned air in the new Hartford Hospital is distributed through Anemostat air diffusers. These devices permit a high number of air changes per hour with complete freedom from drafts. They assure uniform temperature and humidity throughout the enclosure and prevent stratification or stale air pockets.

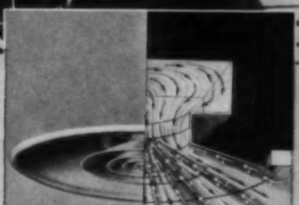
The problems encountered in air conditioning hospitals are unusually complex. Unless forced-air movement is draftlessly diffused and directed, discomfort, bacterial pollution by infected dust and explosion hazards exist. The use of Anemostat air diffusers has solved these problems in over 200 leading hospitals.

Write for full information on the use of Anemostats for heating, ventilating or cooling or ask for a consultation with an Anemostat engineer.

Coolidge, Shepley, Bulfinch and Abbott—Architects
Hollis French — Mechanical Engineer







The Anemostat Air Diffuser is distinguished by the exclusive feature of aspiration . . . the drawing of room air into the device where it is mixed, within the unit, with the supply air before it is discharged in a multiplicity of planes.

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ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

MANUFACTURERS' LITERATURE

Lighting

Smithcraft School Lighting. Booklet discusses how the *Eye-Q* line of flourescent lighting fixtures are designed to meet the basic factors of school lighting. Various models are pictured and described; special installation features are shown. 12 pp., illus. Smithcraft Lighting Division, Chelsea 50, Mass.*

Neo-Ray ML-2448 Louvered Ceiling. Shows by detailed drawings basic parts of the *Neo-Ray* louvered ceiling, basic steps in design of a louvered ceiling, typical layouts and shop window treatments. Computed illumination values are given for various lamp heights, lamp spacing. 6 pp., illus. Neo-Ray Products, Inc., New York 10, N. Y.

Ceilings Unlimited. This comprehensive bulletin on the *Miller Troffer System of Fluorescent Lighting* is divided into three main sections — How They Look, How They Work and How to Specify Them. "How They Look" presents actual installation photographs and architectural renderings of interiors showing what has been done and what can be done to achieve decorative ceiling effects. "How They Work" illustrates the four basic methods of ceiling construction employed with detailed drawings and photographs. "How to Specify Them" shows all items making up the Miller Troffer systems with installation and dimensional data included. 105 pp., illus. The Miller Co., Meriden, Conn.

Architectural Lighting Equipment. Catalog describes complete Gotham line of *streamlights, downlites, litetroughs, fluorotroughs,* fitting mirror brackets and the new pendant indirect *dome-lite.* Photographs, descriptions, scale drawings, specifications and engineering data are included. 36 pp., illus. Gotham Lighting Corp., 548 W. 22nd St., New York 11.

Plastics

Texolite Plastics Surfacing, Tops for Table Tops. Presents features of Texolite plastics, suitable for use on dinette table tops, sink tops, kitchen work surfaces, bar and counter tops. Method of application is explained. Several pages are devoted to showing new colors and patterns. Typical applications are pictured. 12 pp., illus. General Electric Co., Chemical Dept., Pittsfield, Mass.*

Mixing Valves

Doran Thermostatic Water Mixing Valve Catalog No. 2-41. Lists characteristics of Doran mixing valves such as available water temperatures and capacities. Doran Shower Sets are pictured. Installation features are shown in dimensioned drawings and photographs, and a price list is included. 8 pp., illus. Cunningham Mfg. Co., 4200 W. Marginal Way, Seattle 6, Wash.

Sliding Door Hardware

The Modern Sliding Door Rolls on Har-vey Hardware. Brochure contains floor plans showing various adaptations of sliding doors. Operation of sliding door hardware is explained and installation details are included. 10 pp., illus. Metal Products Corp., 809 Northwest 20th St., Miami, Fla.*

Concrete Forms

Steel Forms for Concrete. Manual intended primarily as an instruction book for those who will actually use or super-

---

* *Other product information in Sweet's File, 1948.*

(*Continued on page 174*)

Where appearance counts....

Amtico RUBBER FLOORS

Give the mark of distinction to lobbies and waiting rooms you design. Specify Amtico Rubber Flooring for these important "first impression" points, for with Amtico you're recommending a quality product backed by thirty years' experience.

From Bullock's new Pasadena store on the West Coast to Princeton University in the East, year after year Amtico is proving its superiority throughout the country. Whether you concentrate on large public buildings or do most of your designing for private homes, you'll find Amtico Rubber Floors adaptable to any room or decorative scheme.

When you want distinguished, beautiful floors that defy wear; that keep their gleaming freshness with a minimum of care; that absorb sound and lessen fatigue, specify Amtico.

It's easy to get more information about this premium flooring—just send in the coupon.

AMERICAN TILE & RUBBER CO.
TRENTON, NEW JERSEY

AMERICAN TILE and RUBBER COMPANY
Perrine Avenue, Trenton 2, New Jersey

Please send me samples and literature showing Amtico Rubber Flooring in full color?

NAME..

ADDRESS..

Architects:
Skidmore, Owings & Merrill,
New York City.

Contractor:
Frank Messer & Sons Inc.,
Cincinnati.

Why architects Skidmore, Owings & Merrill CHOSE FENCRAFT WINDOWS for the new Terrace Plaza Hotel

Here is a building of distinctive beauty. Every room is a charming "package" of comfort and light. Architects Skidmore, Owings & Merrill capitalized on the grace and efficiency of Fencraft in planning this magnificent hotel.

The finer fenestration offered by Fencraft Intermediate Steel Windows is in their design. But their *low cost* is the result of modern manufacturing methods. Use of high-quality standard casement sections of advanced design streamlines production . . . without sacrificing variety in window types and sizes. Installation costs are minimized because the dimensions of Fencraft Windows are co-ordinated with those of collateral wall materials.

The better your materials, the better the finished job. For full information on the many types and sizes available, see Sweet's Architectural File for 1948 (section 16a-14), or mail the coupon.

The beautiful Terrace Plaza Hotel, Cincinnati, equipped with Fenestra* Steel Fencraft Intermediate Windows for abundant daylight and controlled fresh-air ventilation.

Remember these Fencraft benefits whenever YOU have a job to do:

BEAUTY—in graceful lines and fine hardware.

DURABILITY — in solid, rolled-steel casement sections.

UTILITY—in easy screening and safe washing (both from inside the room), firesafety, efficient daylighting and controlled fresh-air ventilation.

ECONOMY—in low cost that helps stretch today's building dollar.

*®

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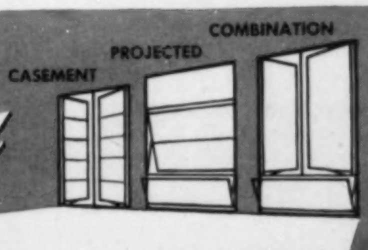


FENCRAFT INTERMEDIATE STEEL WINDOWS

Detroit Steel Products Company,
Dept. AR-12,
2252 East Grand Blvd.,
Detroit 11, Michigan

Please send me data on types and sizes of the new Fencraft family of Fenestra Windows.

Name______________________________

Company______________________________

Address______________________________

(Continued from page 172)

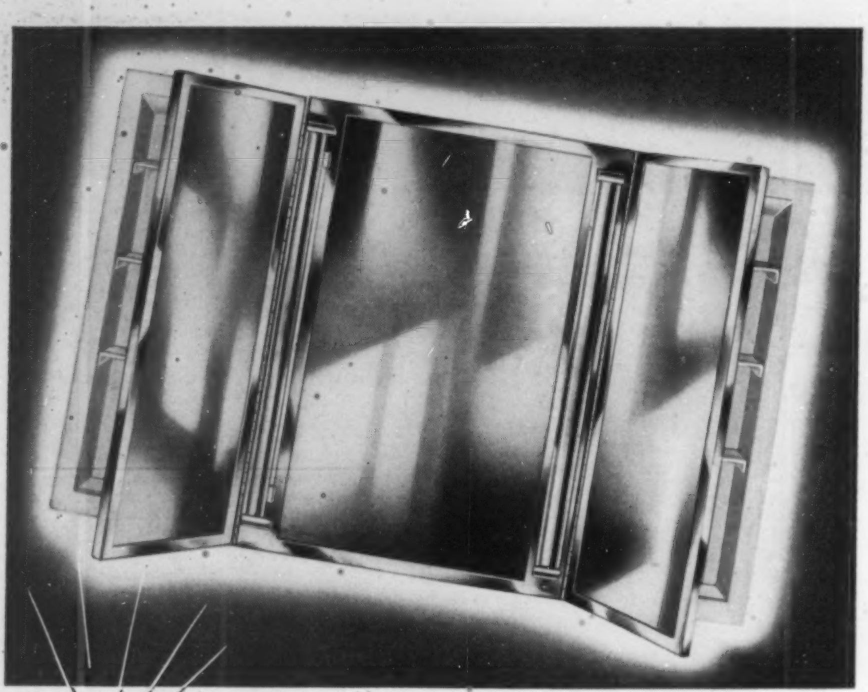
vise the use of steel forms. Contains discussion of advantages claimed for Atlas Speed Forms such as economy, convenience of use and time saving. Irvington Form & Tank Corp., Irvington, N. Y.*

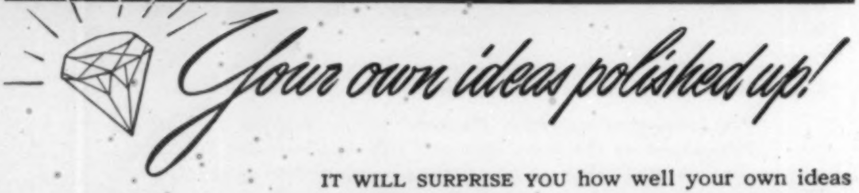
Electrical Wire, Cable

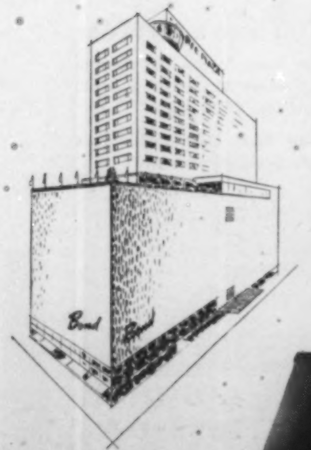
Latex Insulated Building Wires and Cables. Booklet gives performance characteristics, construction details and specifications for a complete line of armored cables, service entrance cables, non-metallic sheathed cables and new building wire designed specifically for wet locations. 20 pp. United States Rubber Co., Rockefeller Center, New York 20, N. Y.

Roof Drainage

Stainless Steel Roof Drainage for Lasting Architectural Distinction. Discusses features of stainless steel roof drainage equipment such as: durability, freedom from replacement, strength, abrasion resistance and riddance of "bleeding." The booklet shows details of a canopy over a garage entrance, ventilation dormer, and flashing. Also included are illustrations of standard parts and fittings and a listing of standard specifications. Another section describes tested procedures for fabrication and installation. 8 pp., illus. Armco Steel Corp., 199 Curtis St., Middletown, Ohio.*




Your own ideas polished up!



IT WILL SURPRISE YOU how well your own ideas have been polished up—and how completely they have been incorporated in the designs of the whole Parker Line of bathroom cabinets and accessories. Years of experience have developed Parker's ability to see eye-to-eye with architects in style and utility . . . just as working with builders has influenced Parker's strict standards of materials and workmanship to meet extreme usage requirements. See the complete line in Sweet's, or send for the new Parker Catalog. The Charles Parker Company, Meriden, Connecticut.

Parker Bathroom Cabinets and Accessories were used throughout Cincinnati's new Terrace Plaza Hotel.

PARKER

BATHROOM CABINETS
AND ACCESSORIES

Heat Transfer

Bush Heat Transfer Products (Catalog No. 140). Provides calculation methods and engineering data for selecting the following types of air conditioning coils: steam coils (standard), steam coils (non-freeze), direct expansion cooling coils, and water cooling coils. Ratings and performance data are given for many applications. 36 pp., illus. The Bush Mfg. Co., 179 South St., West Hartford 10, Conn.

Thermal Insulation

Simplified Physics of Thermal Insulation. Revised edition of a manual containing a discussion of heat transfer, condensation, vermin, mold, radiant heating and other topics involved in the study of insulation. A chart of thermal insulation values has been revised and broadened in scope. Advantages of aluminum reflective insulation are given. 32 pp., illus. Infra Insulation, Inc., 10 Murray St., New York, N. Y.*

Plastics Standards

NEMA Standards for Laminated Thermo-Setting Decorative Sheets. Describes standard grades, thicknesses, tolerances and various tests for resistance to wear, boiling water, high temperatures, stains, color fastness, moisture and dimensional change. The last section of the data is devoted to recommended techniques for applying decorative laminates. These new standards are the work of the Advisory Technical Committee of NEMA's Decorative Laminate Group. National Electrical Manufacturers Ass'n, 155 E. 44th St., New York 17, N. Y.

Standards for Treated Wood

Manual of Standards for Treated Wood. An engineering guide in the form of a revised manual of standards for treated wood is now available from the American Wood-Preservers' Ass'n. According to the publisher, the standards have been condensed to essential details with repetitions eliminated. Principal subjects are grouped under the titles: Preservatives, Treatments, Methods of Analysis and Recommended Practices. 150 pp. American Wood Preservers' Ass'n, 1427 Eye St., N. W., Washington 5, D. C.

(Continued on page 190)

Store Fronts with

SELLEVISION

INTERIORS
Bert L. Smithson
AND SON
FURNITURE

Architectural Engineers, Herman & Salzman, Chicago

ACTION WHERE IT COUNTS . . .

*Sell*evision induces action at the store entrance itself. The doors swing in for ready made customers, made ready by the compelling array of attractions inside and clearly visible from the sidewalk. To obtain the full benefits of *Sell*evision design, complete Safety-Set Store Front Construction should be utilized.

Safety-Set is heavy gauge, steel reinforced construction in handsome stainless steel and anodized aluminum. The sash is extremely low to permit maximum visibility and it incorporates Brasco's deeper grip to hold glass firmly and securely. Heavy-duty bars provide ample strength and support for heightened areas and larger glass loads.

In addition to classic styling and structural soundness, Safety-Set Fronts are economical to install. Our complete line includes a wide selection of standard assemblies requiring stock size millwork only. Here is beauty, utility and economy combined. For store fronts of individuality and distinction your best bet is Safety-Set.

★ ★ A COMPLETE LINE FOR EVERY DESIGN ★ ★

Brasco
SAFETY-SET
STORE FRONTS

BRASCO MANUFACTURING CO.
HARVEY • (Chicago Suburb) • ILLINOIS
Specialists in Metal Store Front Construction for more than 35 Years

Copr. 1948 by Brasco Manufacturing Co.

(Continued from page 146)

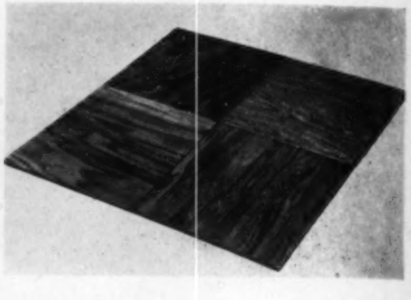
ported to show that light and sound transmission properties of plastic blocks are nearly the same as for those made of glass. Columbia Protecktosite Co., Carlstadt, New Jersey.

SLIDING DOOR UNIT

A sliding door kit, designed primarily for general home building, is said to contain all essential operating hardware and accurately machined wood frame parts. The *Huttig* frame, when assembled, is installed in the prime 2 by 4 in. studding, with pocket portion covered with the same material used on other wall surfaces.

The frame is manufactured for single doors only, in standard widths from 1 ft. 6 in. to 3 ft., in standard heights 6 ft. 6 in. to 7 ft., and either $1\frac{3}{8}$ or $1\frac{3}{4}$ in. widths.

The manufacturer lists three unique features: (1) the door is suspended from two solid brass hangers with ball-bearing rollers operating on an aluminum track. The patented hanger design permits floor clearance adjustments without removing the door from the track; (2) a stabilizing fixture guides the door, equidistant from each side of the pocket jambs, preventing noisy play and eliminating marring of the door; (3) a slotted escutcheon plate at the lower closing edge of the door fits firmly over a rubber door guide at the bottom of the closing jamb to insure a rigid closed door. Huttig Sash & Door Co., St. Louis, Mo.



Multiple veneer plies make up flooring

HARDWOOD BLOCK FLOORING

Hasko Block Flooring is said to be exceptionally strong and highly inert by being constructed of multiple plies of veneers laid cross-grained. The hardwood blocks are reported to withstand extreme temperature changes and moisture conditions; the manufacturer guarantees each block against delamination.

The flooring comes in blocks 12 in. square by $\frac{3}{8}$ in. thick made of Northern Oak, and the blocks have a tongue and groove feature.

The blocks are laid with the grain of each running opposite to that of surrounding blocks. Hasko flooring can be applied directly on concrete by using a mastic; no screeds, lag screws or expansion bolts are necessary. On wood sub-floors or old wood floors, the technique of blind nailing is employed.

Each block is prefinished at the factory. Haskelite Mfg. Corp., Grand Rapids, Mich.

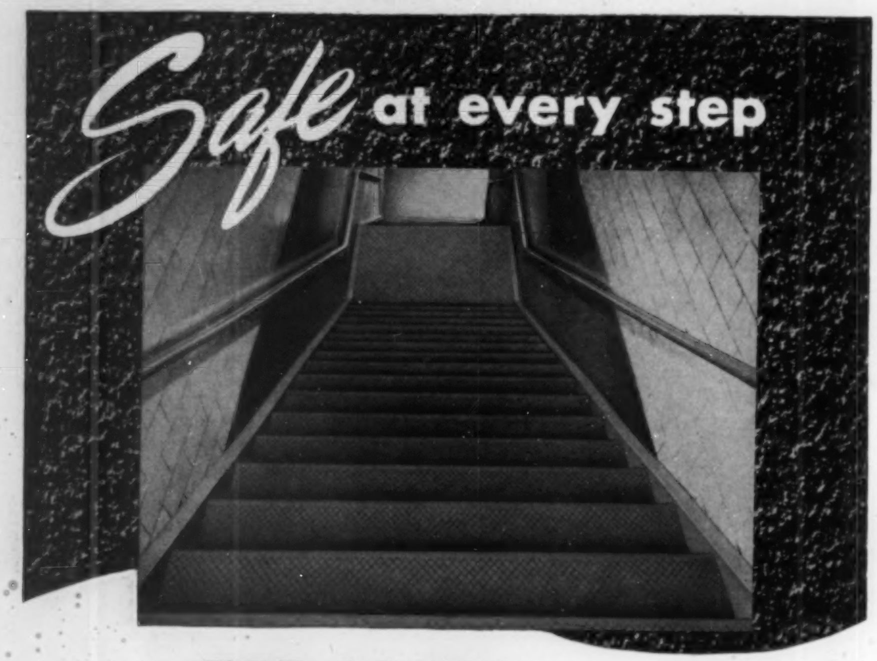
MINIATURE KITCHEN EQUIPMENT

A complete set of miniature plastic appliances is being made available to assist architects, builders, financial institutions and schools in planning kitchens and laundries.

Called the *Applianset*, the kit consists of 77 appliances, cabinets and kitchen furnishings scaled one inch to the foot and made of light, durable polystyrene. Also included are four metal walls, four windows, two doors (all in miniature), and a 16-page instruction book together with a specially scaled measuring ruler.

In use as displays and demonstration aids, an unusual feature of the Applian-

(Continued on page 178)



WITH **FERALUN** SAFETY TREADS

Workmen at the Curtiss Wright Plant, Propeller Division, Caldwell, N. J., go up and down these stairs . . . safe at every step.

Their shoe soles come to grips with non-slip Feralun Safety Stair Treads, cast iron, with wear-resistant abrasive embedded right in the walking surface.

Heavy traffic day in, day out — — but Feralun Safety Treads, built to take hard use, stay non-slip . . . last and last.

And that means low maintenance . . . and high safety.

4 TYPES:

Cast iron base	FERALUN
Bronze base	BRONZALUN
Aluminum base	ALUMALUN
Nickel bronze base	NICALUN

3 SURFACE STYLES:
hatched . . . plain . . . fluted

Use coupon below to get our free, illustrated catalog. Also consult Sweet's File, Architectural, 13 a-8.

AMERICAN ABRASIVE METALS CO. (AR 12-48)
460 Coit Street Irvington, N. J.

☐ Please send me your catalog on non-slip stair treads, floor plates, thresholds, elevator sills, and safety tile.

☐ Please have one of your safety engineers contact me.

Name.................................... Title....................
Company....................................
Street....................................
City.................................... State....................

Send for your FREE COPY

School Department, Luminall Paints
Chicago 9, Illinois

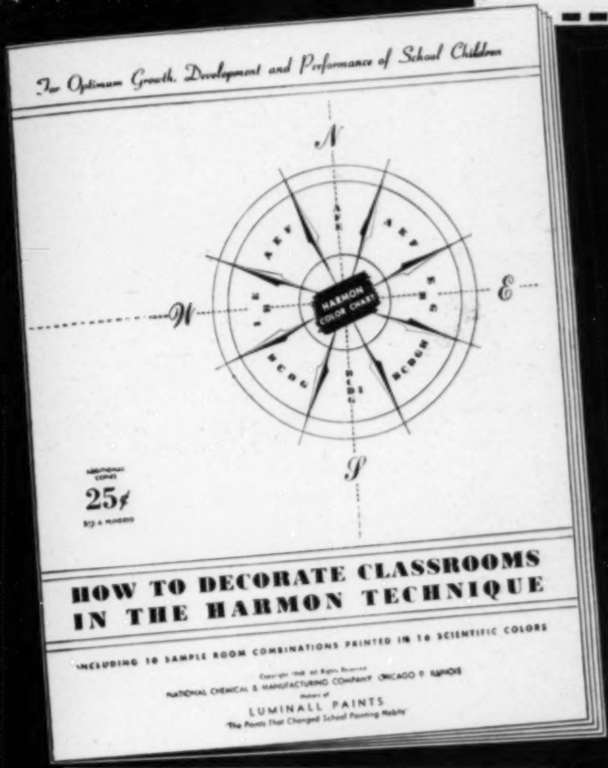
Please send me a FREE copy of *"How to Decorate Classrooms in The Harmon Technique"* including 10 sample room combinations printed in 16 scientific colors.

NAME..

TITLE AND SCHOOL..

STREET..

CITY.................................... STATE ....



For Optimum Growth, Development and Performance of School Children

Additional copies 25¢ $15 a hundred

HOW TO DECORATE CLASSROOMS IN THE HARMON TECHNIQUE

INCLUDING 10 SAMPLE ROOM COMBINATIONS PRINTED IN 16 SCIENTIFIC COLORS

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NATIONAL CHEMICAL & MANUFACTURING COMPANY CHICAGO 9 ILLINOIS
Makers of
LUMINALL PAINTS
"The Paints That Changed School Painting Habits"

N
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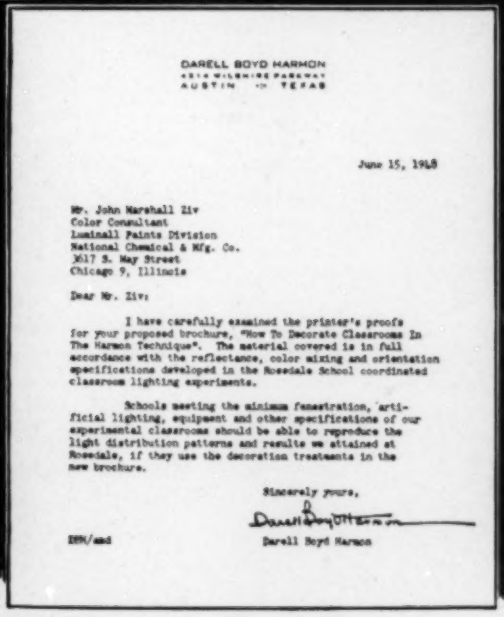
S
W
HARMON COLOR CHART



DARELL BOYD HARMON
[illegible] WILSHIRE PARKWAY
AUSTIN TEXAS

June 15, 1948

Mr. John Marshall Ziv
Color Consultant
Luminall Paints Division
National Chemical & Mfg. Co.
3617 S. May Street
Chicago 9, Illinois

Dear Mr. Ziv:

I have carefully examined the printer's proofs for your proposed brochure, "How To Decorate Classrooms In The Harmon Technique". The material covered is in full accordance with the reflectance, color mixing and orientation specifications developed in the Rosedale School coordinated classroom lighting experiments.

Schools meeting the minimum fenestration, artificial lighting, equipment and other specifications of our experimental classrooms should be able to reproduce the light distribution patterns and results we attained at Rosedale, if they use the decoration treatments in the new brochure.

Sincerely yours,

Darell Boyd Harmon

DBH/amd Darell Boyd Harmon

Every Architect Needs a Copy of "HOW TO DECORATE CLASSROOMS IN THE HARMON TECHNIQUE"

With this booklet, just off the press, you can duplicate the painting of schoolroom walls and ceilings as recommended by Dr. D. B. Harmon. The Harmon Technique has produced remarkable educational and physical betterments in school children as shown at Rosedale (Austin, Tex.) and elsewhere.

This booklet greatly simplifies the decorating procedure of the Harmon Technique. You follow the directions in each of five steps. A chart indicates approved color combinations from which you make your selections; 16-color printing shows you the colors and how they will look on the wall; complete formulas are given for mixing the paint colors and applying Luminall Paint.

The Harmon Technique is scheduled to be discussed editorially in several leading national magazines. Luminall paints' own advertising to the general public on the Harmon Technique will appear shortly.

Send today for your Free copy of "How to Decorate Classrooms in the Harmon Technique." Additional copies may be purchased at 25c each . ... or $15 per hundred copies.

SCHOOL DEPARTMENT, LUMINALL PAINTS
CHICAGO 9

LUMINALL
ONE COAT

LUMINALL the light-reflective paint for interiors

(Continued from page 176)

set is the method of hanging wall cabinets. Each of these units is fitted with a small *Alnico* magnet which holds it tight against the metal walls, yet permits fast setting up and changing of any plan. General Electric Co., Bridgeport 2, Conn.

RESIDENTIAL LIFT

An exclusive feature of the new *Wecolator* residential inclined elevator or lift is its ability to turn corners and proceed around landings as it travels up and down stairways. The Wecolator is installed without the stairway or wall being cut or marred.

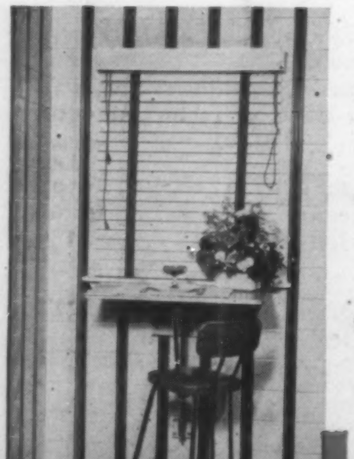
Pushbuttons at the top and bottom of the stairway are used to summon the lift, and a pushbutton located on the chair is used by a passenger to control movement of the lift. The chair may be folded against the wall when the lift is not being used. GMK Sales Associates, 514 N. LaSalle St., Chicago 10, Ill.

specify with assurance

Hastings a
cap #9

use
Feather-light
alumitile

When you specify Alumitile you give your client assurance of enduring beauty, *and* the convenience of gleaming, easy-to-clean walls at prices within the most modest budget. You, the architect, are assured of quality, permanence, and dependability with this modern wall covering. Alumitile is made of sturdy aircraft aluminum, so light in weight that it presents no structural problem. Finished in a choice of 14 decorator selected colors, baked on for permanence, Alumitile offers a wide range of distinctive designs. When applied with a waterproof mastic to any smooth surface it becomes as rigid as the wall itself. Alumitile is thoroughly proof against fire, water, rust, heat and cold. It will not crack, peel or craze. Alumitile is the ideal wall covering for kitchens, breakfast nooks, laundries and bathrooms for home use; and in addition, it has a wide range of commercial uses . . . both indoors and out. Investigate this amazing new wall tile—*alumitile*. Send coupon for descriptive material, color chart and FREE sample.



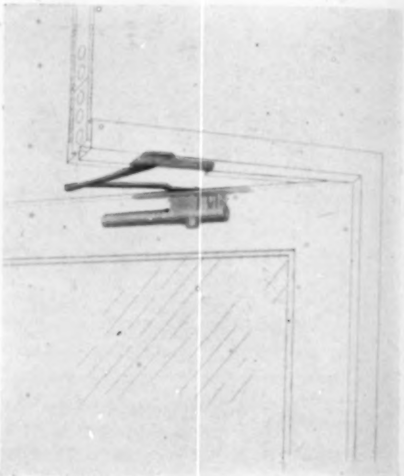
HASTINGS *alumitile*

METAL TILE PRODUCTS, INC., *Hastings, Mich.*
Please send me architect's kit FREE.
name ______
business ______
address ______
city ______ *state* ______

CONCEALED DOOR CLOSER

A new door closer is described as providing concealed control for any metal interior door up to 3 ft. 6 in. by 7 ft. by 1¾ in. in size at a cost not much higher than that of an ordinary exposed closer of similar capacity.

The closing mechanism is entirely concealed within the top rail of the door. Only a slender arm is visible, attached to the frame by a recessed soffit plate. A shock-absorber is standard, and a hold-open arm may be specified. Installation is said to take only a few minutes as both door and frame are previously prepared by the door fabricator. LCN Closers, Inc., 466 W. Superior St., Chicago 10, Ill.



Door closer mechanism is concealed in top rail of door; only small arm is visible

VENTILATING STORM WINDOW

An inside storm window with open-in sill ventilator is now being manufactured. This storm sash has a frame of formed steel, and is for use with *Fenestra* steel casement windows as a complete window unit.

The storm windows are available either one- or two-lights wide. A rubber gasket, attached to storm window frame, is used to prevent metal-to-metal contact and to seal the whole window. Detroit Steel Products Co., c/o W. T. Huddle, 300 Francis Palms Bldg., Detroit 1, Mich.

AUTOMATIC STEAM COOKER

A new steam cooker is not only controlled automatically by operation of the door locking mechanism, but the cooking operation in each compartment is also controlled by the use of electric time clocks. The pressure is automatically released at the end of a predetermined period so that food need not be removed immediately to prevent overcooking.

(Continued on page 180)

For jobs in
every price range –

LOW COST HOUSING

or

DELUXE APARTMENTS

Fireproof GOLD BOND
Partition Systems
offer
best value!

WHERE COST IS A VITAL FACTOR — AMSTERDAM HOUSES had to keep down the cost of 1084 apartments. Gold Bond Solid Partitions met *all* requirements, provided far more living space.

WHERE QUALITY ALONE COUNTS — TUDOR PLAZA APARTMENTS. For this ultra-modern cooperative apartment building in Buffalo, Gold Bond Partition Systems met *all* requirements.

GOLD BOND PARTITION SYSTEMS provide greater living space at no extra cost for *any* job, regardless of size. These partitions, of fireproof gypsum plaster and metal lath save time, labor and space. They're fully described in Sweet's. Or if you'd like a 15 minute demonstration without obligation, just drop us a card.

You'll build or
remodel better with
Gold Bond

NATIONAL GYPSUM COMPANY
BUFFALO 2, NEW YORK

Over 150 Gold Bond Products including gypsum lath, plaster, lime, wallboards, gypsum sheathing, rock wool insulation, metal lath products and partition systems, wall paint and acoustical materials.

(*Continued from page 178*)

The *Van Automatic Pressure Type Steam Cooker* can be furnished either in two-, three- or four-compartment sizes with standard heights, or in two- or three-compartment sizes with extra height compartments.

A red light indicates that there is steam in the pressure compartment. When the steam is exhausted; a green light indicates that the compartment door may be opened.

The automatic door lock turns off the steam before the door can be opened, if electric equipment should fail.

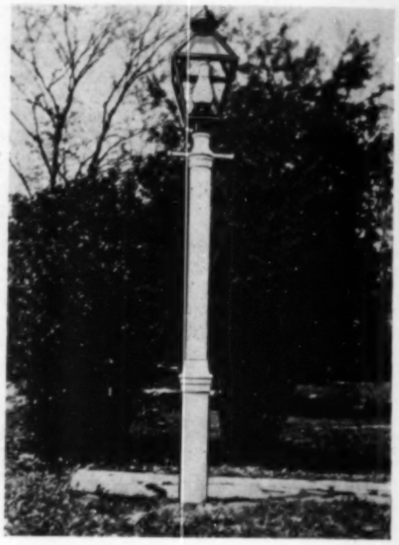
This automatic cooker is available in boiler plate, hot galvanized; in clad metal stainless-steel-lined; and in solid stainless steel. The John Van Range Co., 401–413 Culvert St., Cincinnati 2, Ohio.

ALUMINUM LAMP POST, FLAGPOLE

The sectional, aluminum lamp post, *Liteway*, is approximately 8 ft. high and has provision for fitting various sized lantern collars by means of wooden adapters, 3 to 4 in. in diameter.

This lamp post comes in two sizes — $8\frac{1}{4}$ and $8\frac{1}{2}$ ft. in length with base diameters 4 and 5 in. respectively; the sections fit into a 5 ft. carton for shipment.

An aluminum flag pole, having an overall length of 21 ft. and base diameter of $1\frac{7}{8}$ in., is constructed of four telescopic sections, with pin stops designed for rigid, long lasting service. The pole comes complete with rope, fittings, and is topped by a brass finished eagle. Swain & Bridge, New Britain, Conn.



Sectional lamp post made from aluminum

WOOD-PLASTIC PANELS

Finely divided wood is being formed into panels through the addition of a plastic resin and other binding ingredients followed by the application of heat and pressure. The material was said to have shown very little change after extensive heat and humidity tests. The plastic content of *Prespine* is said to improve the water resistance of the wood fibers as well as acting as a binder.

The color of Prespine is close to that of the species of wood from which it is made. It is cut and machined like wood and made into door panels for interior and exterior use, for parts of kitchen units and for other woodwork. Curtis Companies, Inc., Clinton, Iowa.

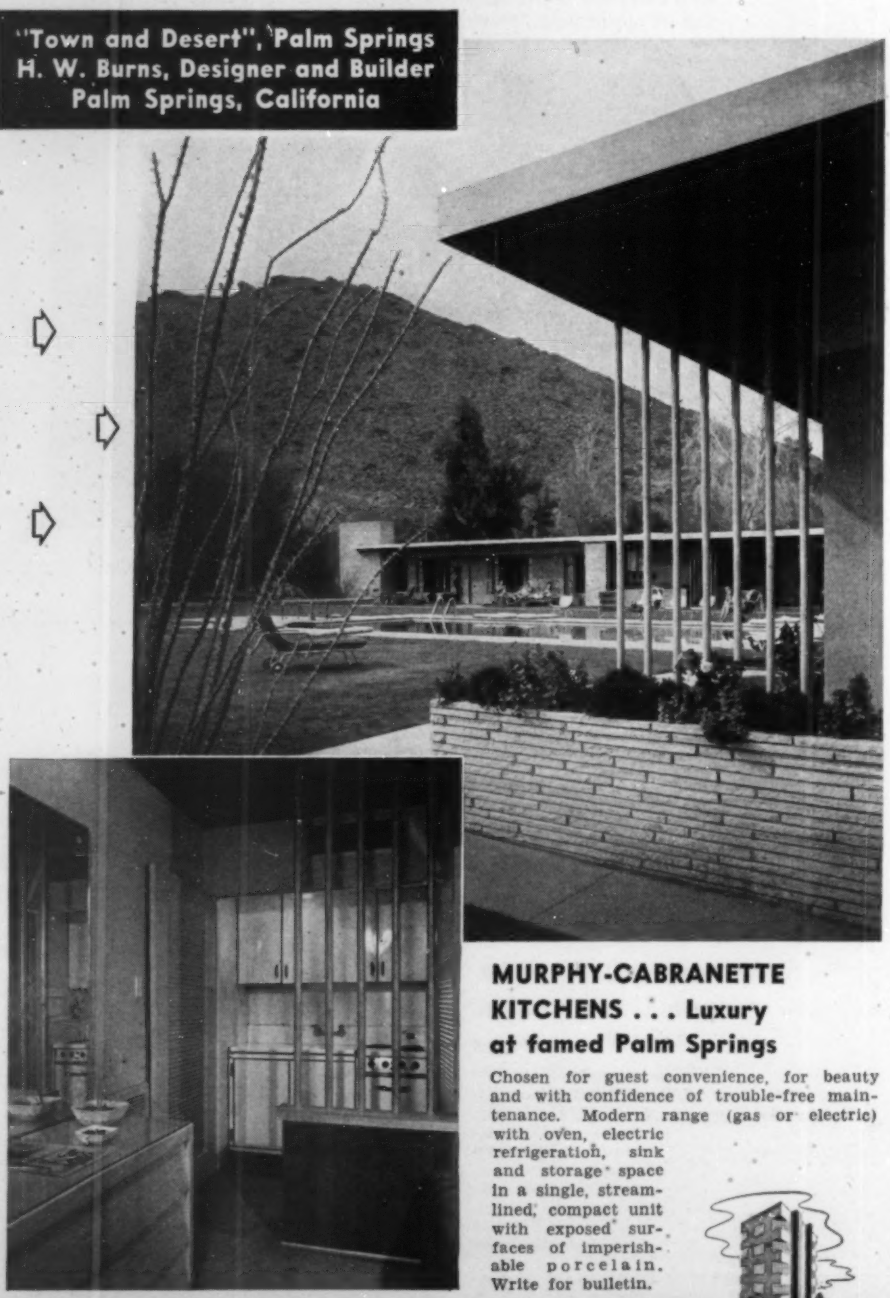
WALL COVERING

Timbertone is a recently introduced wall covering designed to have the visual qualities of wood paneling but to be hung like wallpaper.

These Timbertone coverings (called structural paper veneers) are designed to afford a three dimensional appearance, depth and richness of natural color, sturdiness and durability, and ease of installation. The coverings have raised

(*Continued on page 182*)

"Town and Desert", Palm Springs
H. W. Burns, Designer and Builder
Palm Springs, California



MURPHY-CABRANETTE KITCHENS . . . Luxury at famed Palm Springs

Chosen for guest convenience, for beauty and with confidence of trouble-free maintenance. Modern range (gas or electric) with oven, electric refrigeration, sink and storage space in a single, streamlined, compact unit with exposed surfaces of imperishable porcelain. Write for bulletin.

DWYER PRODUCTS CORPORATION
Dept. R12 — MICHIGAN CITY, INDIANA

Architect:
Stevens & Sipple,
Orlando, Florida

Simple, forceful display—
A SIDEWALK SHOWCASE

Reduce barriers to vision and you reduce barriers to sales . . . that's the principle of a Visual Front—such as this auto showroom. No hiding behind fancy decoration. Just plain, simple, forceful display of the entire interior.

The Visual Front idea has taken hold in a big way. Store owners have found that there's real merchandising power in displaying the whole store and its activity to passersby. That calls for glass—in large areas.

Visual Fronts are practical, too. Glass keeps its look of newness through the years, resists weather far beyond the limits of most materials. That means less refinishing, less cleaning. Large glass areas flood interiors with daylight . . . serve double duty by making the entire lighted store a showcase at night.

For Visual Front ideas and information on types of glass, write for your copy of our colorful book. Libbey·Owens·Ford Glass Company, 45128 Nicholas Building, Toledo 3, Ohio.

GLASS FOR VISUAL FRONTS

See Your L·O·F Distributor

FOR TRANSPARENT AREAS — L·O·F Plate Glass, ground and polished for maximum freedom from distortion. To insulate glass areas, specify *Thermopane**. Its panes are separated by sealed-in, dehydrated air. *Thermopane* is readily available. For doors and other areas that might be subject to impact, specify *Tuf-flex** tempered plate glass.

FOR TRANSLUCENT AREAS — to bring in light and assure privacy, use Blue Ridge Patterned Glass for walls and partitions.

FOR SOLID AREAS — Colorful *Vitrolite** glass facing keeps its luster, doesn't need refinishing and is unaffected by weather. Does not warp, swell or craze.

*®

IN CANADA, THERMOPANE IS SOLD BY PILKINGTON GLASS, LTD.

VISUAL L·O·F FRONT
©1948
Libbey-Owens-Ford
Glass Company

LIBBEY·OWENS·FORD
a Great Name in **GLASS**

(Continued from page 180)

ridges to simulate actual wood grains.

Timbertone is prepared as an emulsion of fibre, cement and linseed oil. This material is then aged, cured, and finally finished with oil stains to make the covering sunfast and washable. A coat of wax applied every few years is said to maintain a depth and richness of color and to insure perfect washability.

Wood finishes include Gold Oak, Oak, and Pecky Cypress; other surface finishes are Fabriktones, Metaltones and a reproduction of hand-laid bricks. Timbertone Decorative Co., Inc., 324 Lafayette St., New York 12, N. Y.

TRANSPARENT MIRROR

A new large size of transparent mirror (30 by 60 in.) made of polished glass $\frac{13}{64}$ in. thick is now available from Libbey-Owens-Ford Glass Co.

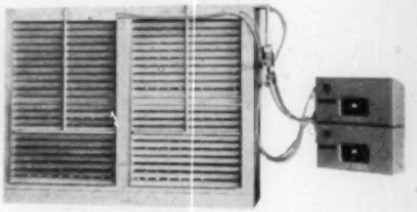
When installed in a wall between a well-lighted room and one that is darkened, the transparent mirror appears reflective to occupants in the well-lighted room; however, it is transparent to those in the dark room.

Other sizes available are: 12 by 40 in., 20 by 40 in., and 30 by 40 in. The manufacturer is also making special transparent mirror of *Tuf-flex* heat-tempered glass. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo 3, Ohio.

ELECTROSTATIC PRECIPITATORS

Commercial electrostatic precipitators are now being built to customer specifications by Trion, Inc. for cleaning and purifying air and other gases. Specially constructed floor models, suspended cabinets and large size filters for unusual applications can be furnished on request.

Two new models have been added by the company to their "packaged" line. These Trion air filters (ready to install) are designed to handle air volumes up to 4000 cfm.



Custom-built electrical precipitators are available for cleaning air, other gases

All units are guaranteed by the manufacturer to remove more than 90% of the dust, smoke, soot, lint, pollen and other air-borne irritants from air streams passing through the filter — if installed according to specifications and not in excess of nominal rating. Trion, Inc., 1000 Island Ave., McKees Rocks, Pa.

EXTRUDED METAL PRODUCTS

Eugene Extruded Metals Corp., subsidiary of Southern California Glass Co. and manufacturers of *Holobilt* aluminum doors, tub and shower enclosures and sliding glass patio walls are now operating under the name of The Holobilt Co. Holobilt Co., 2445 S. Santa Fe Ave., Los Angeles 11, Calif.

SLIDE VIEWER

Offered as a selling aid for architects and building contractors is the *Kodaslide Table Viewer* which projects 2 by 2 in. photographic transparencies on a new type screen built into the viewer. It is said to be the first complete projection system for miniature color transparencies which can be used in a fully lighted room.

The new viewer is completely portable and occupies less than 10 by 12 in. of table space. It holds 75 cardboard slides or 30 double-glass slides which may be

(Continued on page 184)

What can you find in the New Wade Catalog that you can't find anywhere else?
Q
WADE DRAINS
Answers to Your Problems ...for example...
HOW TO SIZE ROOF LEADERS
WADE
W-3260 Roof Drain with integral expansion joint

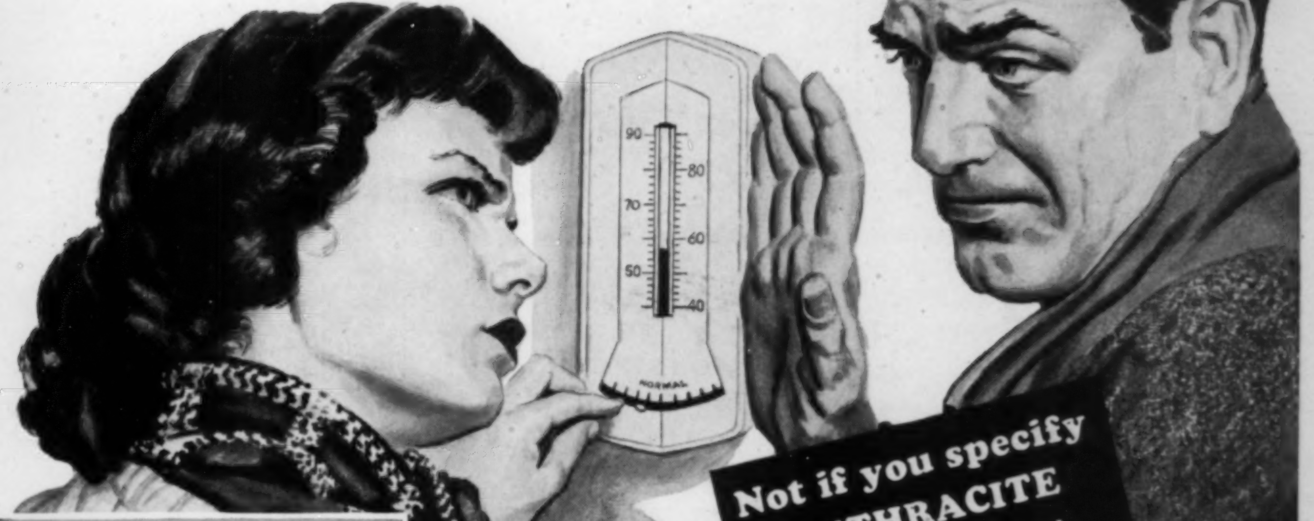
Here's just about the most complete section on roof drains anywhere—pictures, drawings, dimensions, weights and prices—plus—*how many, what size* and *where to put* roof leaders! Tables based on a scientific U.S. rainfall map tell just what area can be drained by each size leader.

In fact, the whole Wade Catalog W-55 is designed to solve as many problems as possible, about floor or roof or pool drains, backwater valves, grease interceptors, water hammer or sump pumps! If you haven't a copy, drop us a line today.

WADE MANUFACTURING COMPANY of ELGIN, Illinois

Makers of Fine Drains and Plumbing Specialties Since 1865

Must Owners of your new houses *POLICE THE THERMOSTAT?*


90
80
70
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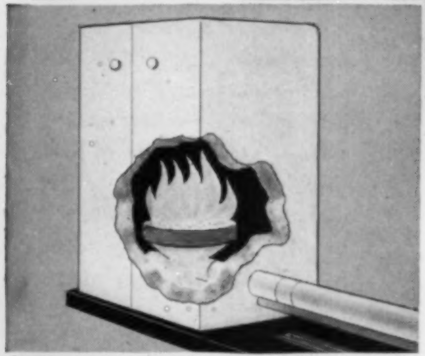
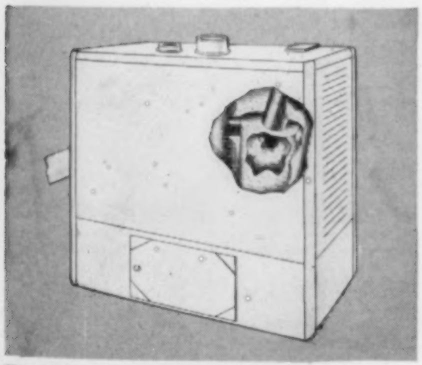
50
40
NORMAL
Not if you specify ANTHRACITE Equipment!



Automatic Anthracite Stokers Installed in an existing boiler or furnace and in new houses, automatic hard coal stokers deliver *plenty* of heat quickly . . . save up to 50% on fuel bills . . . eliminate fuel worries.



The Revolutionary Anthratube—The Anthratube saves on fuel bills . . . its proved efficiency is over 80%. This scientifically engineered boiler-burner unit, with "Whirling Heat" and other revolutionary features, produces quicker response and superior performance than units using other types of fuel.

Experts predict shortages of some fuels for 3 to 5 more years!

There are no Ifs, Ands or Buts when you specify Automatic Anthracite Heating

OWNERS of your new houses *can* have *plenty* of worry-free heat because there's plenty of hard coal and there is anthracite equipment to fit any heating requirement.

A whole winter's supply of anthracite can be stored easily in advance. Everyone wants this kind of security and convenience. They have *just that* when you specify automatic anthracite equipment.

Look over the two types of domestic anthracite equipment shown here. They burn the cheaper sizes of economical hard coal . . . completely automatic from bin feed to ash removal.

Write to us for more detailed information on all types of anthracite heating equipment—domestic and commercial.

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mullions

and

spandrels

by

ALBERENE

U. S. Veterans Administration Bldg., Wilkes-Barre, Pa. Architects: Lacy, Atherton, Wilson & Davis.

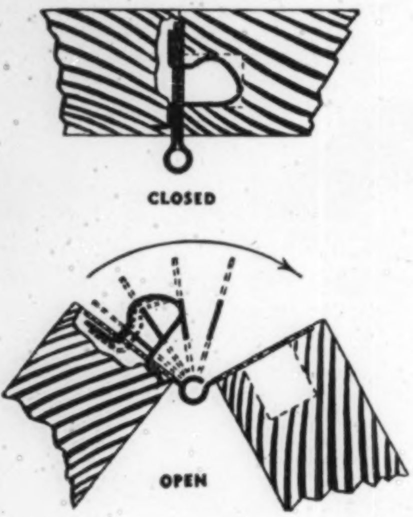
Regular grade Alberene's soapstone window mullions and spandrels are financially and esthetically *right* for your job. They're greenish-blue . . . harmonize with any decorative pattern. *And* their price will put a grin on the face of even your most budget-minded client.

For samples and further information, write or phone —

ALBERENE STONE CORPORATION
of VIRGINIA
419-4th Ave., New York 16, N. Y.

(*Continued from page 182*)

intermixed in use, and projects on the screen (7½ by 7½ in.) an enlarged image approximately five times that of slides made from 35 mm. transparencies. Eastman Kodak Co., Rochester 4, N. Y.



Tempered spring transforms butt-hinge into one that is reported self-latching

LATCHING HINGE

An ingenious device that adds to any conventional butt-hinge the function of a latch spring has been introduced. It is described as not only self-latching, but also self-aligning.

Both leaves of the hinge are slotted to permit the insertion of a simple "cam"-like, U shaped, tempered spring made from flat spring steel stock. One end of the spring is anchored in the door jamb. The other end, the curved or "cam" side, compresses into the hinge slot. The spring then releases and latches by the manual closing of the door — 1, 2, or 3 springs are inserted in the hinge, depending upon the size of the hinge.

Latchinge is installed like any other butt-hinge, except that a mortise, the depth of the spring insert, must be provided. No other separate latch, catch, or hook need be put on. With the addition of a pull, knob or handle, the entire door is ready for hanging. Sagging or warped doors, thus present no "out-of-alignment" latching problems, according to the manufacturer. Latchinge Corp., 9100 Roselawn, Detroit 4, Mich.

OVERLOAD PROTECTION

A new line of *Quicklag Load Centers* in basic circuit enclosures of 2, 4 or 8 is available for completely automatic protection of home wiring circuits.

(*Continued on page 186*)

EVEN NOW...
IN MID-SEASON
—IT'S SMART
TO MODERNIZE
YOUR BOILER PLANT
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Replace obsolete equipment—now—with Todd Burners and profit in terms of fuel saved. Trained Todd specialists . . . long Todd experience...modern Todd facilities . . . assure you a fast change-over to efficiency in the burning of liquid or gaseous fuels. Take advantage of the knowledge and guidance of your local Todd Dealer.

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How to Please All Your Clients...

specify WELDWOOD PLYWOOD for commercial installations

OFFICES. Birch Weldwood combined with wallpaper. Valance is decorative and practical — it conceals drape and blind attachments, and provides space for indirect lighting fixtures at the same time.

BARS & RESTAURANTS. This beautiful Claro Walnut Weldwood bar front was made for the Cardinal Richelieu Hotel, San Francisco. Walls and columns were covered with the same paneling.

INSTITUTIONS. Mengel Flush Doors and trim of Ribbon Grain Walnut Weldwood set off the diamond-matched bleached Walnut walls and railing. Recessed panels over doors are of Stump Claro Walnut.

HOTELS. Your first impression of the Ottaray Hotel lobby, Greenville, S. C., is one of richness and good taste. Guinea Wood Weldwood in a handsome treatment of walls, columns and stair-rail.

STORES. Window-dress the whole store! Graceful curves and smooth-flowing lines provide an eye catching background for display in this I. Miller shoe salon, New York. The wood is oak Weldwood.

BANKS. Dignity and stability are the keynotes of this luxurious installation of Figured Mahogany paneling in the Conference Room of the Long Island City Savings Bank, L. I. City, N. Y.

Most commercial installations present essentially the same requirements for an interior wall surface. Appearance, durability, ease of maintenance and finished cost . . . these are the major questions.

And here are Weldwood's answers:

APPEARANCE. Man's old-time, all-time structural-decorative favorite . . . wood. Choose from the very finest domestic and imported hardwoods . . . because only selected flitches go into Weldwood panels. Create traditional or modern interiors. You have a wide latitude for numerous effects . . . because Weldwood's lustrous beauty is a perfect complement to any style.

DURABILITY. Weldwood *resin-bonded* panels are laminated under heat and pressure, to produce a modern form of decorative panel that will *never* warp, crack or delaminate, when properly installed.

EASE OF MAINTENANCE. First cost is practically last cost, when Weldwood walls are installed. These beautiful decorative panels maintain their original beauty with minimum care. Maintenance is negligible.

FINISHED COST. Because Weldwood panels combine high structural strength with great decorative beauty, you can specify many short cuts that save both material and labor. Your finished costs will look good, compared to the striking appearance of the finished job.

So look into Weldwood for *all* your commercial clients. Take your choice from fine woods like oak, birch, korina, maple, walnut, gum, mahogany, zebrawood, avodire, rosewood and teak. Make *everybody* happy . . . store-owners, restaurants, bankers, businessmen, hotel-owners and operators of institutions. Specify Weldwood for their interior walls.

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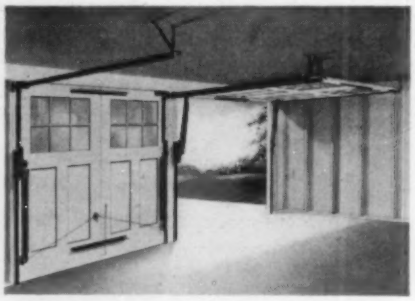
ONAN STANDBY POWER

(*Continued from page 184*)

An outstanding feature of the load center is the Quicklag Circuit Breaker, with advantages listed by the manufacturer as: (1) there are no fuses to replace; (2) circuit protection cannot be changed; (3) breaker cannot be held closed against shorted or overloaded circuits; arcs are snuffed out by the De-Ion principle; its thermal magnetic action protects against unnecessary tripping and momentary overloads — time delay (thermal) protection operates on sustained overloads and instantaneous (magnetic) protection on short circuit faults.

The load center is designed to accommodate 10-, 15-, 20-, 30-, 40- and 50-ampere breaker ratings. They can be installed with fewer active circuits than the total provided for, leaving spare circuit positions. They are designed for 2-wire SN 125 V a-c or 3-wire SN 125/250 V a-c. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.



Kit furnishes hardware for overhead doors

OVERHEAD DOOR HARDWARE

The 999 Overhead Garage Door Hardware Kit is designed to simplify the installation of overhead garage doors and to provide the convenience of balanced, quiet, smooth overhead doors at a minimum of cost. Hardware in the kit can be used on any door not more than 8 ft. wide, 8 ft. high, 1¾ in. thick, and weighing up to 200 lb. Only ½ in. headroom is needed. All parts are constructed to attach in sequence by fitting one part to the other. Steel weatherstrips are included, and latches are part of the bottom arm bracket which fastens to the door. Richards-Wilcox Mfg. Co., Aurora, Ill.

THIN STEEL WALL COVERING

Ribbon steel coated with porcelain is one of the newest things in wall coverings. Marketed in lengths of 100 ft., rolled, the material is said to be applied more easily than wallpaper.

A number of advantages are listed for the new-type "wallpaper" — ease of

(*Continued on page 188*)

A.W. FABER CASTELL
S.A. 9400 2H

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Of the architectural firm of Nemeny & Geller, Mr. George Nemeny has been identified with many types of buildings, including homes, row houses, stores, apartments, institutions and industrial construction. His more recent projects include Garden Apartments, Syracuse, N. Y.; Cooperative Clinic, Newark, N. J.; and Al & Dick's Steak House, New York, N. Y. Based on his wide experience, Mr. Nemeny comments on Petro Oil Heating Systems as follows:

> *"I have found that Petro equipment is designed primarily to deliver the fuel economy which causes architects, engineers and owners to install oil firing. Petro Systems possess a mechanical simplicity and basic strength which result in easy, inexpensive upkeep.*
>
> *"I am satisfied, and I know owners are too, with the Petro characteristics of long operation and economy in fuel, labor and maintenance."*

OF THE MANY REQUIREMENTS to be met in planning a building's oil-heating system, two in particular deserve first consideration. Will the proposed equipment handle the heating load adequately? Will it do so economically — so the owner will be satisfied?

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INDUSTRIAL MODELS: No. 5 or No. 6 fuel oil; manual, semi-automatic or automatic operation; 8 sizes to 450 bhp. Thermal Viscosity preheating.

DOMESTIC MODELS: No. 3 or lighter oils; "conversion" and combination-unit types, 7 sizes. Patented "Tubular Atomization."

FULL DATA on Petro Industrial Burners obtainable in catalog files of Sweet's, and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

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Anchor Fence

Nation-wide Sales and Erecting Service

(Continued from page 186)

handling, for one. The thin steel sheet is only 0.010 in. thick with a 0.006 in. layer of porcelain on each side and can be cut readily with ordinary scissors. It is claimed not to buckle or wrinkle in any of the handling processes. Its backers say it is practically impossible to chip or crack the porcelain layers.

The new material is applied to any conventional flat surface, as plaster or plywood, with glue such as that used in laying linoleum. The seams can be covered with tack-on or snap-on mouldings. These can be arranged to give depth and size to the room.

When installed, the steel "wallpaper" is reported impervious to heat, acids, rust, moisture, discoloration, and destruction by rodents. Cleaning requires only washing with a wet cloth, the manufacturers say. Baltimore Porcelain Steel Corp., Baltimore 3, Md.

ALUMINUM WALL TILE

One of the prominent features of *Hastings Alumitile* is said to be the application of precise color control — the finish of the tile is reported so carefully regulated that a perfect match in color can be made.

The bond between the baked-on finish and aluminum is said to be so permanent that the finish will not crack until the metal itself is torn.

Alumitile is claimed not to rust and to have a finish highly resistant to normal household acids. The tile is available in a variety of shapes and in 14 colors. Metal Tile Products, Inc., Hastings, Mich.

AUTO CLOSE DOORS

An automatically closing, insulated, swinging door is now being manufactured for protection of different plant areas from heat or drafts.

The metal-clad doors are designed to be pushed aside by running an electric truck or other heavy duty transportation conveyance truck through them and to close automatically. The doors, operating without springs or air pressure control, lift slightly and move a two-way gravity cam which operates in a fully enclosed housing bolted to the upper portion of the side and head jambs. Return of the cam by gravity closes the doors.

Because they are designed to provide fire-resistance, and to withstand hard usage, it is believed that these doors will be particularly suitable in warehouses, railroad freight stations and manufacturing industries as well as hospitals, hotels and restaurants. Jamison Cold Storage Door Co., Hagerstown, Md.

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heated by

Smith-Mills Boilers

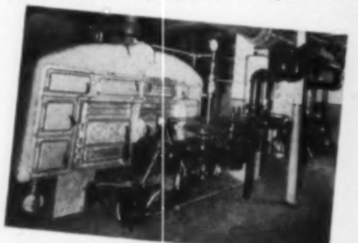
New W. T. Grant Co. Store in Syracuse, New York. Completely modern in every detail, to help customers *buy*, salespeople *sell*. Architect—P. A. Cunnius; Mech. Eng'rs. — Jaros, Baum & Bolles; Heat. Cont. — Edward Joy Co.

The W. T. Grant Co. chain sells millions of dollars worth of goods in an average postwar year! It isn't all gravy, however — overhead costs really eat into profits in these days of high break-even points!

But Grant management knows that *some* operating costs — like heating —can be cut to the bone . . . by selecting equipment that costs less to operate and maintain. That's why over 200 Grant stores have installed Smith-Mills *cast-iron* boilers. As a result, they're enjoying lower fuel bills, negligible maintenance costs—and better heating, to boot!

It *always* makes sense to specify Smith-Mills for commercial, institutional, and industrial installations. And when profits hinge on lowered operating and maintenance costs, it makes *double sense*.

Boiler room of the new Grant Syracuse Store, heated by two 24 section No. 60 Smith-Mills boilers, which fired by gas, deliver a total of 12,000,000 b.t.u.'s per hour.



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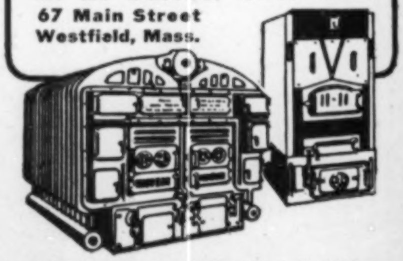

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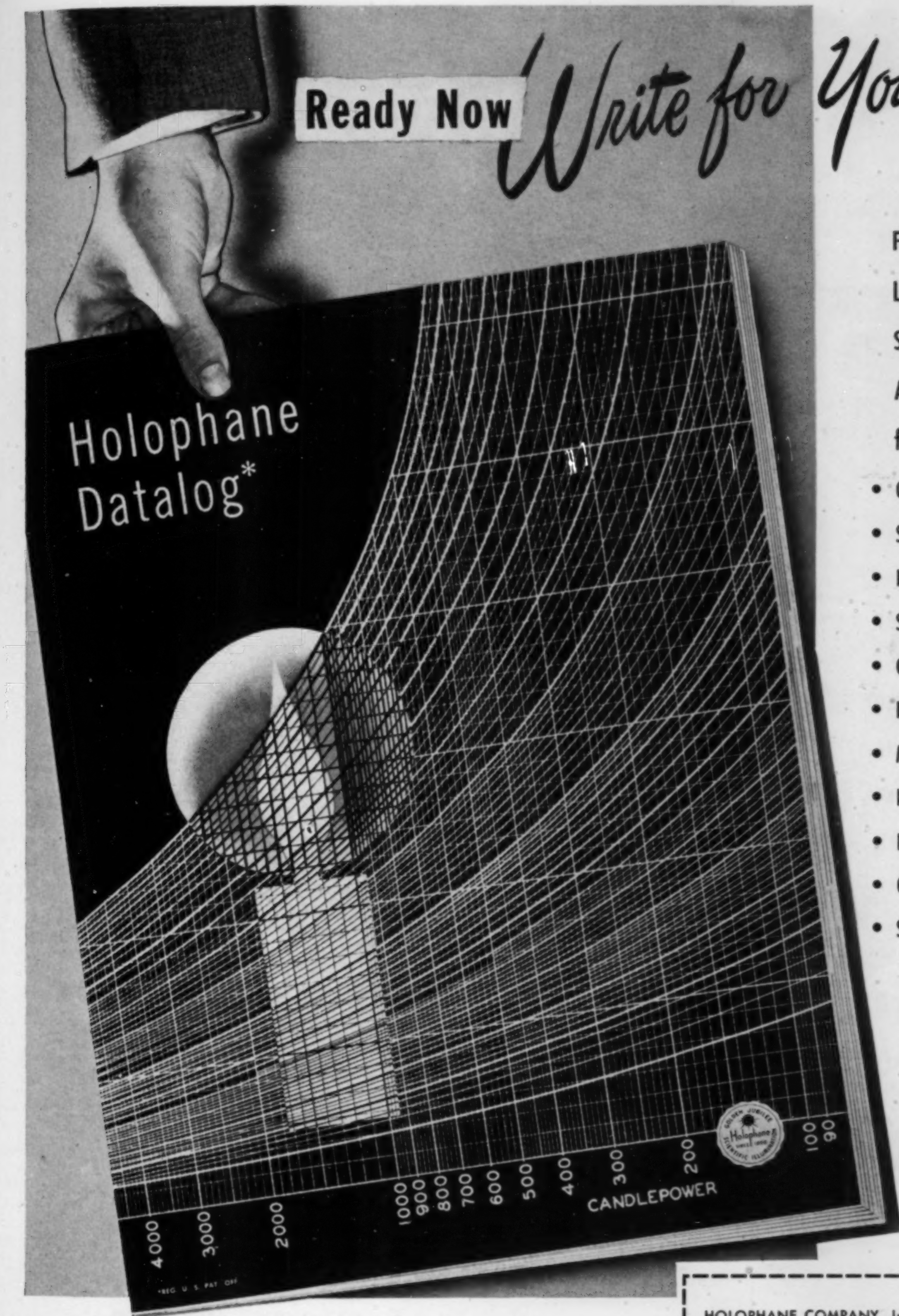
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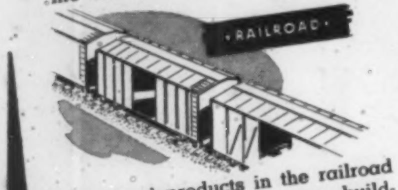

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(*Continued from page 174*)

Steel-Frame Structures

Standard Buildings by Luria. Contains data and specifications on complete line of steel-frame buildings available with clear spans of 40 to 100 ft., eave heights of 12 to 20 ft., and lengths in increments of 20 ft. These standard buildings are flexible so as to be used singly or in any desired combination. 20 pp., illus. Luria Engr. Corp., 500 Fifth Ave., New York 18, N. Y.

Aluminum Windows

Kesko Architectural Aluminum Windows. Installation details and standard types available are shown for a line of aluminum windows designed for application in one-story industrial buildings, dairies, bottling plants, etc. 6 pp., illus. Kesko Products, Inc., Bristol, Ind.

White Fir Wood

White Fir of the Western Pine Region. Lists in detail the properties and grades of the species and its uses in the general construction and industrial fields. Full page pictures of typical pieces of each grade are accompanied by text material describing the illustrated examples.

Properties and uses sections are illustrated with photographs of white fir in actual use in residences, commercial buildings, cabinets, etc.

The book is indexed and carries a list of standard manufactured sizes and an alphabetical list of uses and recommended grades. 56 pp., illus. Western Pine Assn., Yeon Bldg., Portland 4, Ore.*

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

B.B.B. Impianti Speciali, Contractors, Viale dei Mille 19, Milano, Italy.

Darden Drafting Office, 735 S. Maine Street, Santa Ana, Calif.

David G. Haumerson, Architect, 702 Court Street, Janesville, Wisc.

Hidell & Decker, Architects, 2715 Oak Lawn, Dallas 4, Texas.

Benjamin A. Hoffman, Architect, 308 Renshaw Building, Pittsburgh 22, Pa.

W. C. Magill, Designer, The Gardens, Berlin, New Jersey.

D. N. McIntosh, Architect & Engineer, 513 Pigott Bldg., Hamilton, Ontario.

Rudolph A. Polley, Architect, 528 B Street, Oxnard, Calif.

Dale C. Robinson, B.M.E., Granby, Conn.

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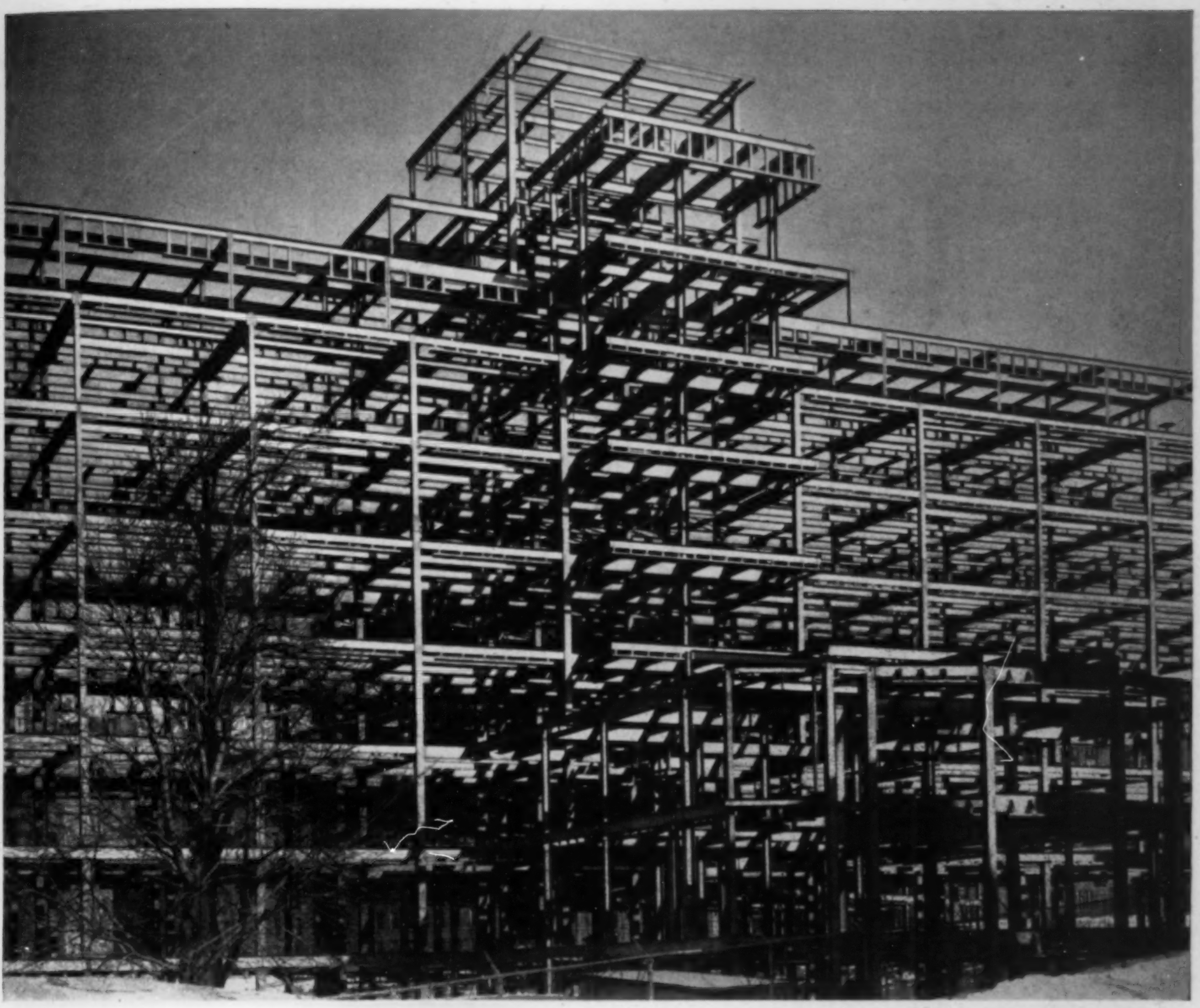

Architects and Engineers: Department of Public Works, City of New York, in consultation with James Gamble Rogers, architect, New York, and Sears & Kopf, consulting engineers, New York. *General Contractor:* Gerace & Castagna, Inc., Brooklyn. *Steel Fabricator:* Harris Structural Steel Co., New York.

Pattern in Steel

This huge concentration of steel is the framework for Florence Nightingale Hospital, in upper Manhattan. Owned by the Department of Hospitals of the City of New York, the ten-story, 331-room structure will have facilities for 307 patients, and will include research laboratories for the study and control of cancer. Its two lower stories are to be finished with granite ashlars, while facing brick with limestone trim has been chosen for the remainder of the building.

As in scores of hospitals and other impressive structures now being erected in widely scattered areas, the framework for Florence Nightingale Hospital is comprised of Bethlehem Structural Shapes.

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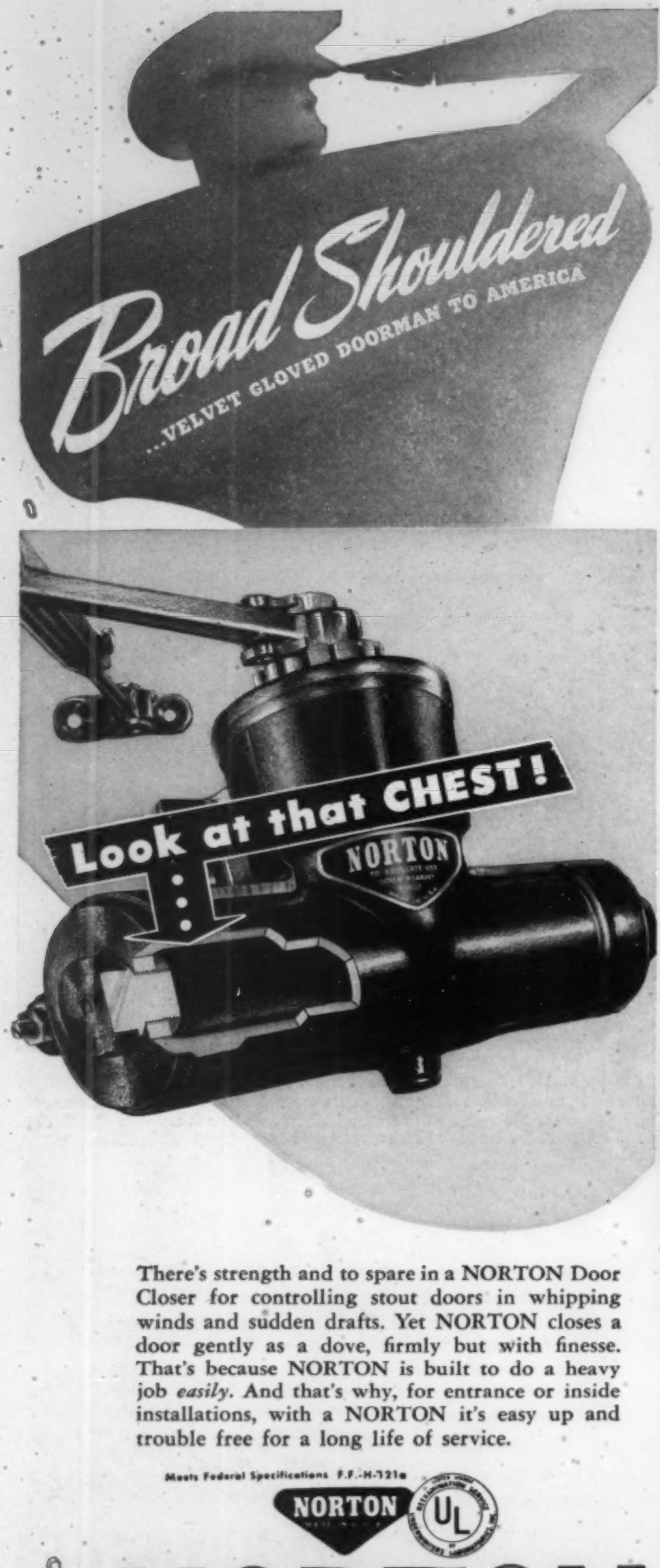

There's strength and to spare in a NORTON Door Closer for controlling stout doors in whipping winds and sudden drafts. Yet NORTON closes a door gently as a dove, firmly but with finesse. That's because NORTON is built to do a heavy job *easily*. And that's why, for entrance or inside installations, with a NORTON it's easy up and trouble free for a long life of service.

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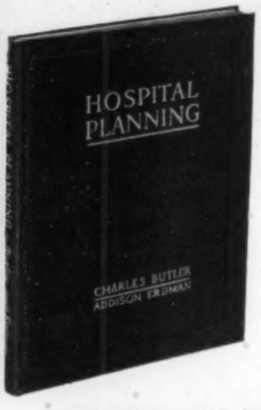

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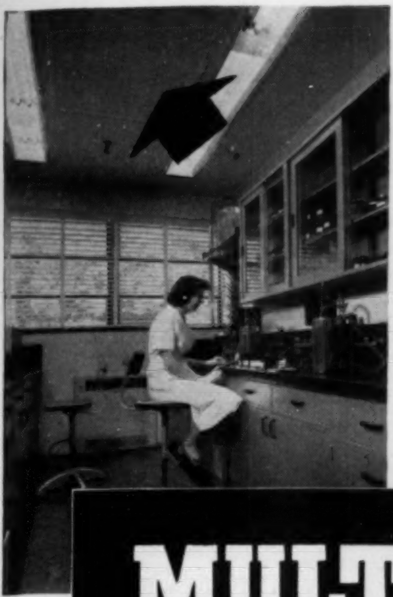

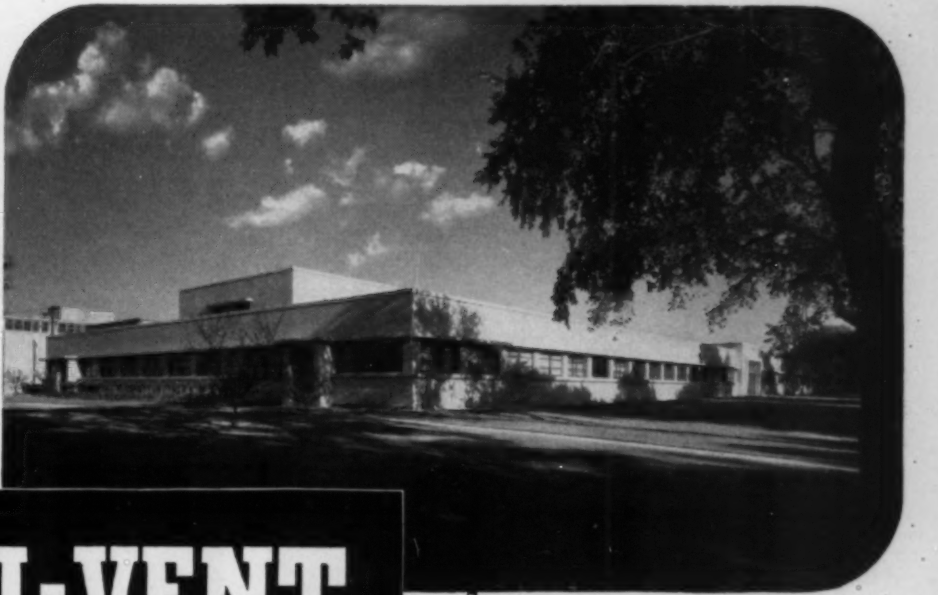

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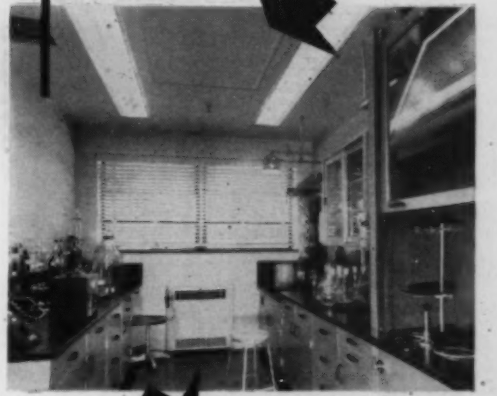

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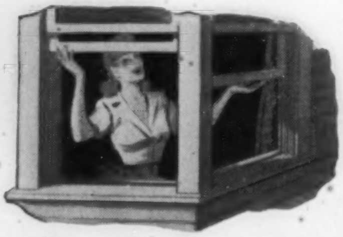

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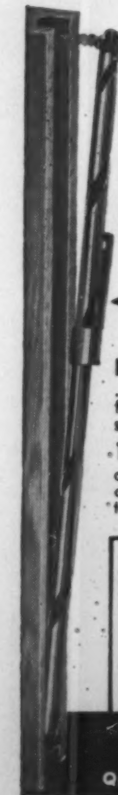

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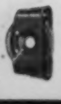

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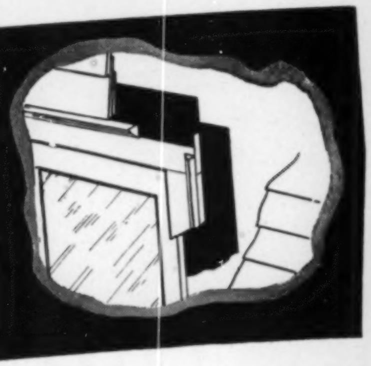

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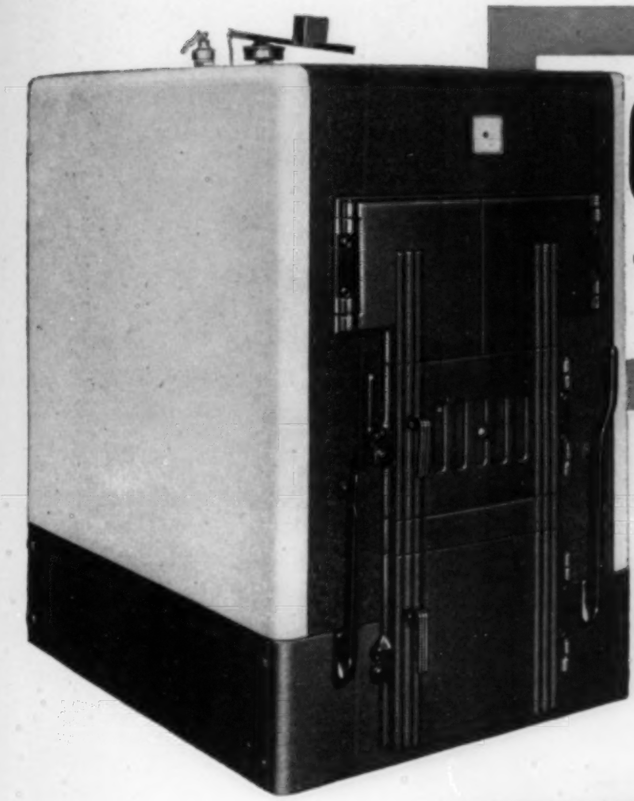

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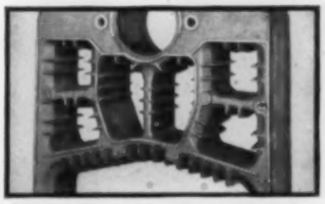

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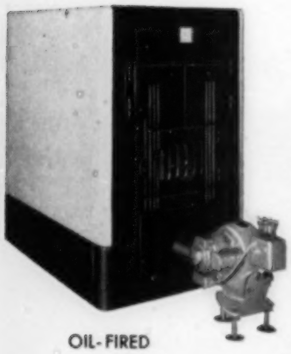

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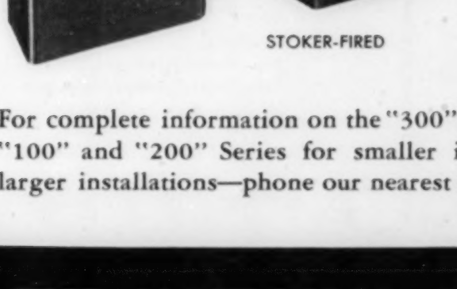

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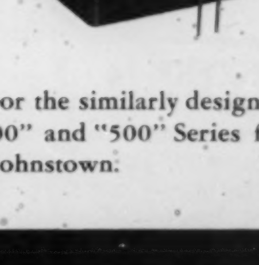

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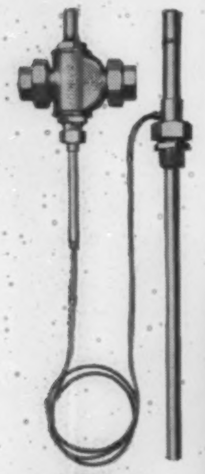

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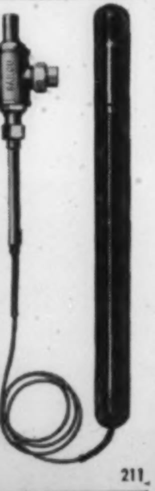

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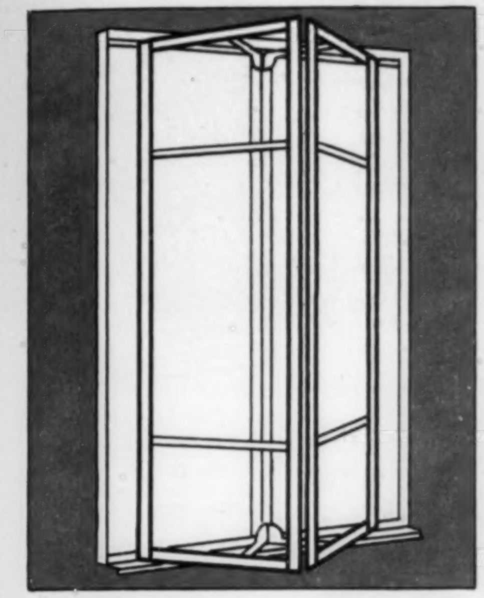
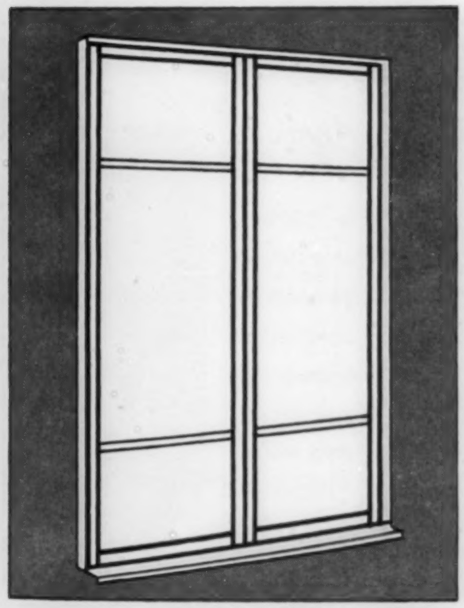


Sash are manually operated or equipped with concealed mechanical operators. Can be geared together for remote operation.



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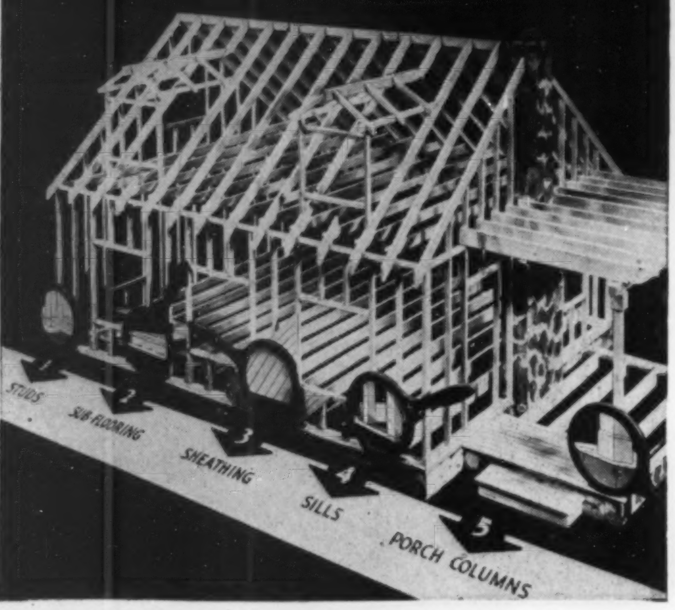

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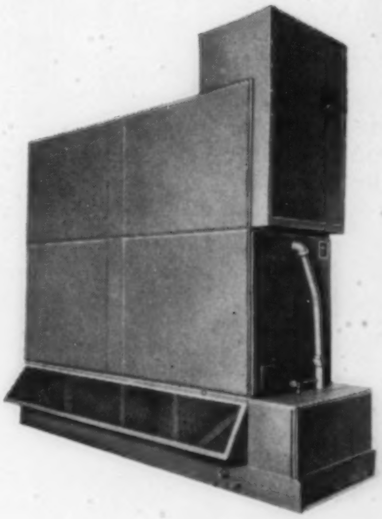

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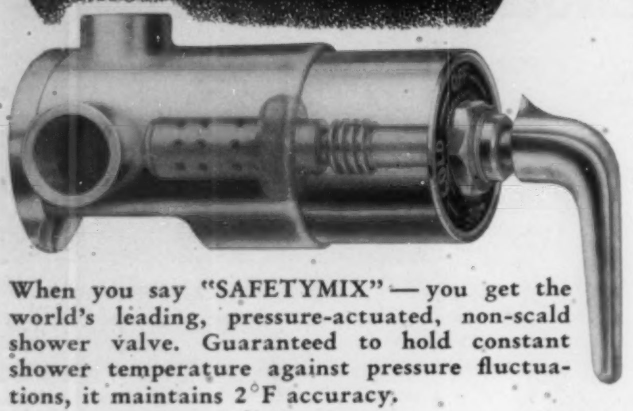

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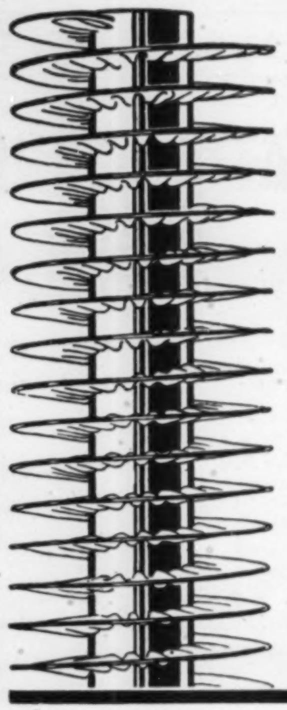

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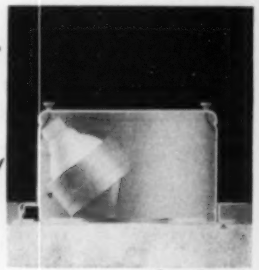

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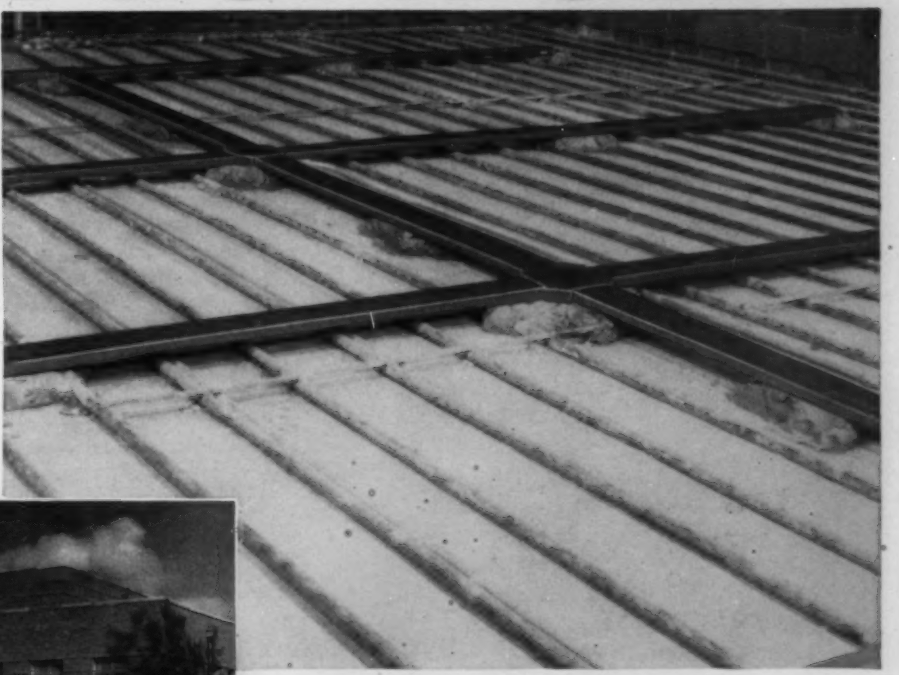

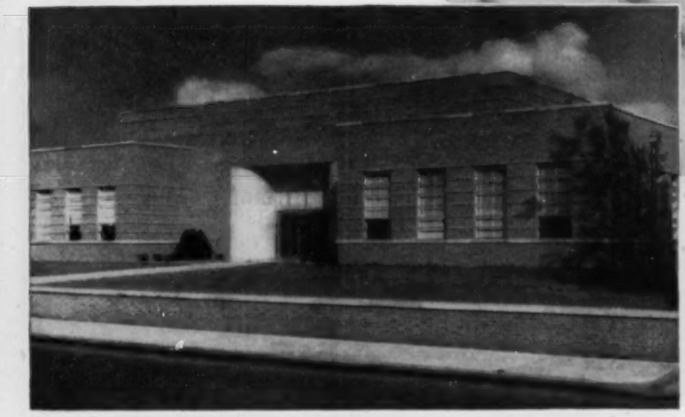

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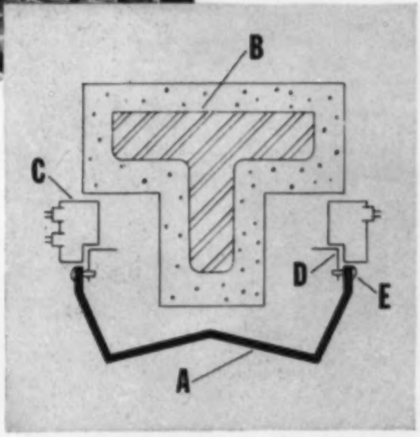

A—*Stainless Steel Mullion.* B—*Main Strut.* C—*Fixed Sash.* D—*Angle.* E—*Screw.*

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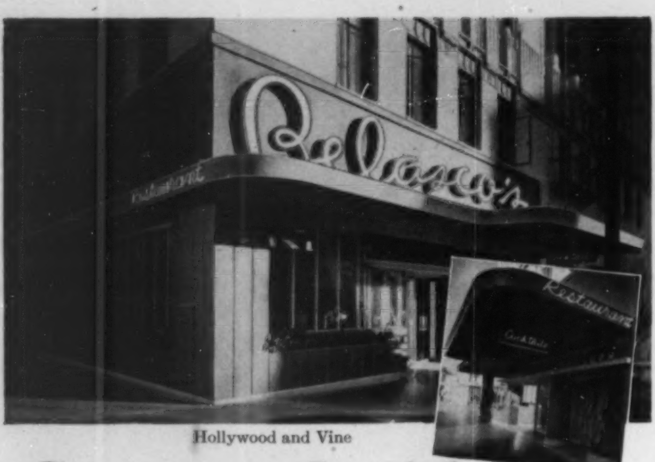

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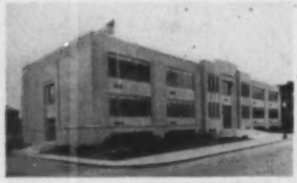
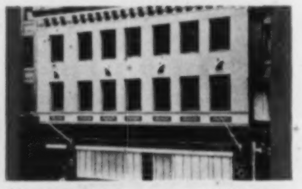


7 years young...Conaty High School Pittsfield, Mass. J. R. Hampson, Pittsfield, Mass., architect. All Spandrels in Seaporcel Porcelain Metal.



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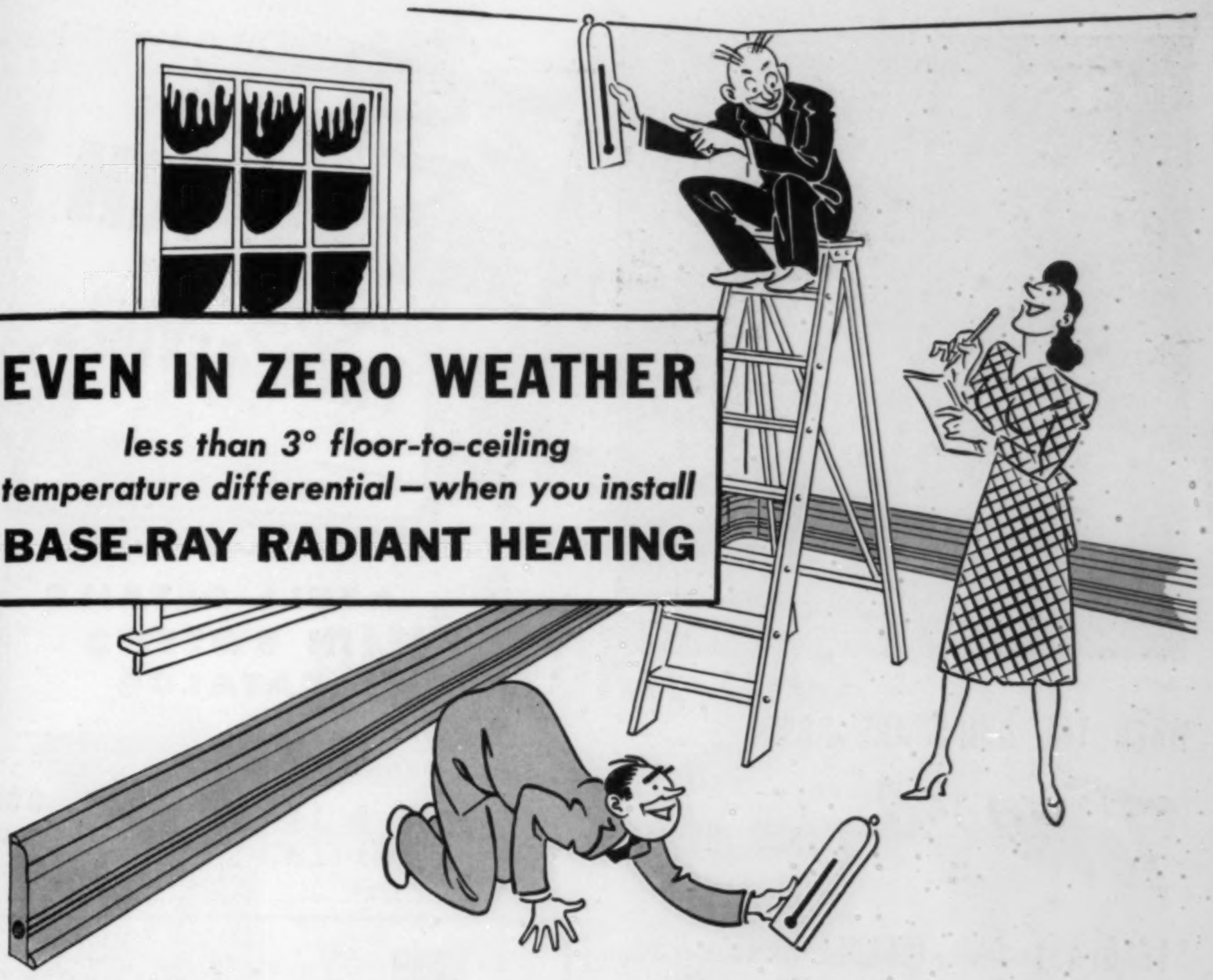

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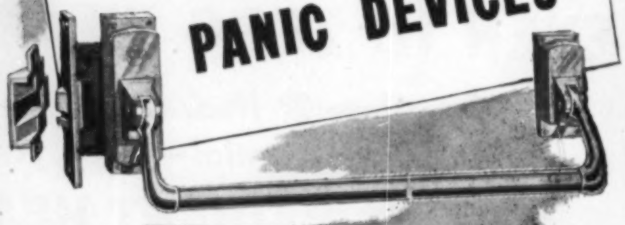

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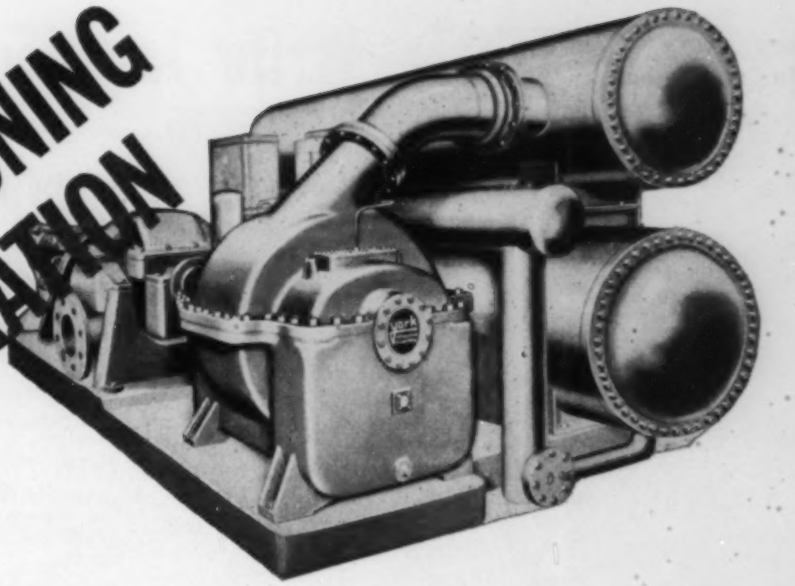

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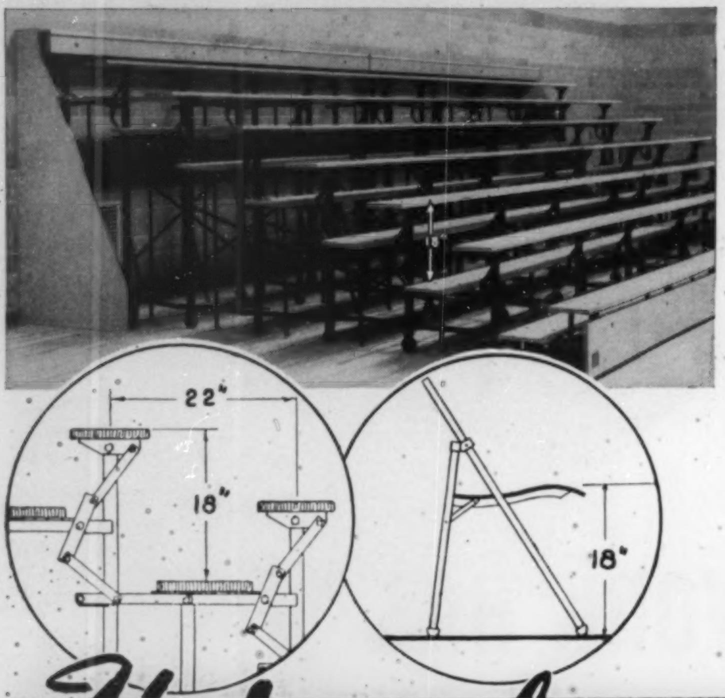

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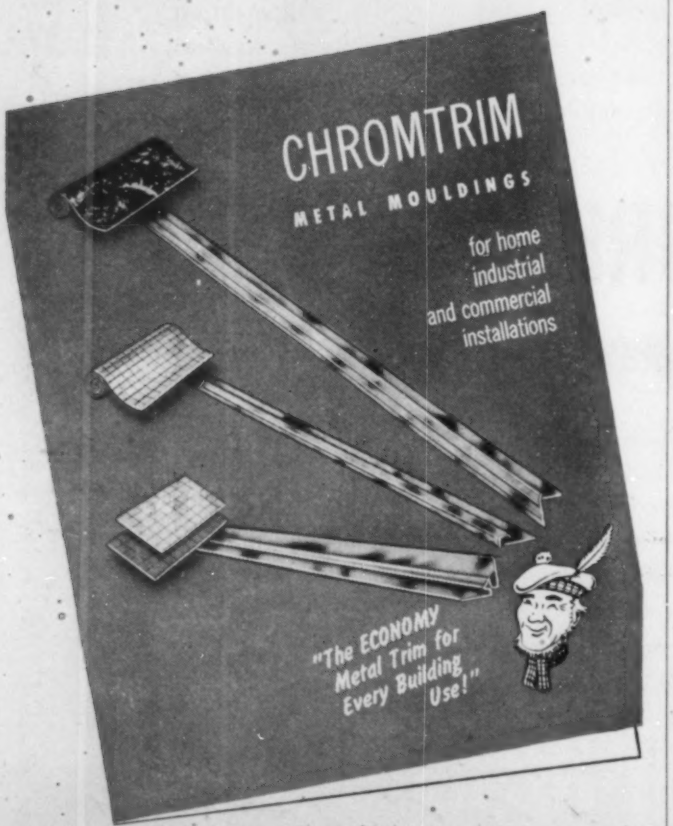
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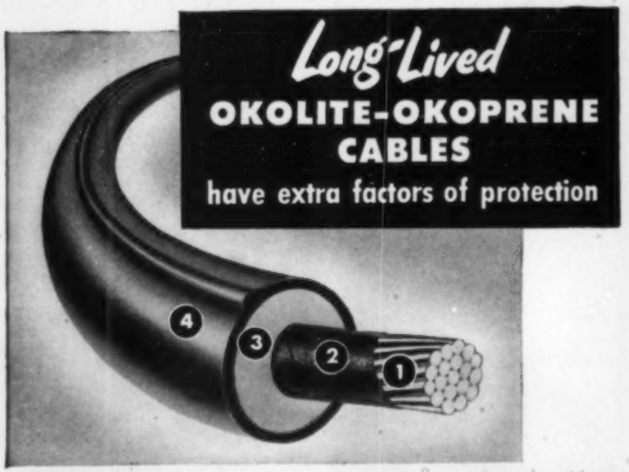

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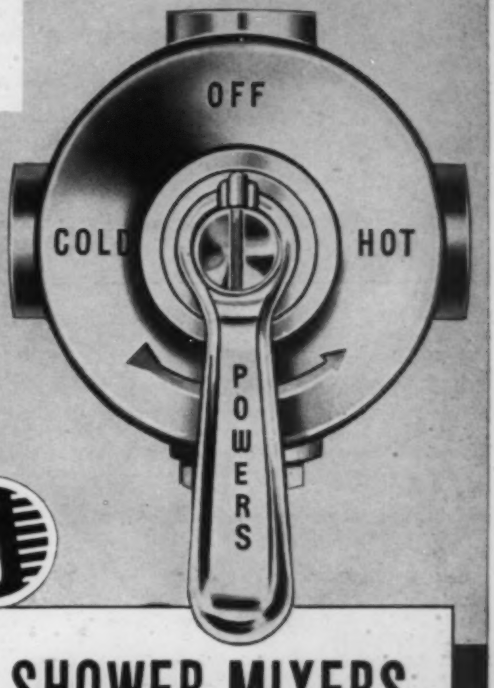

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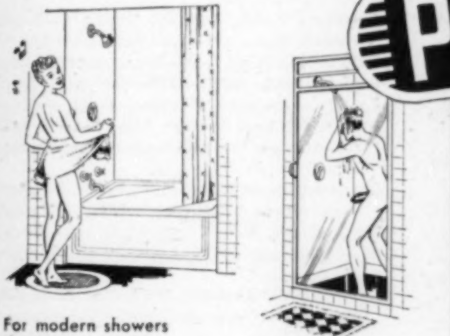

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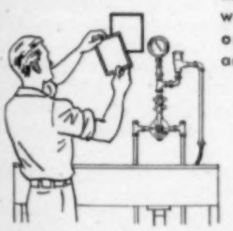

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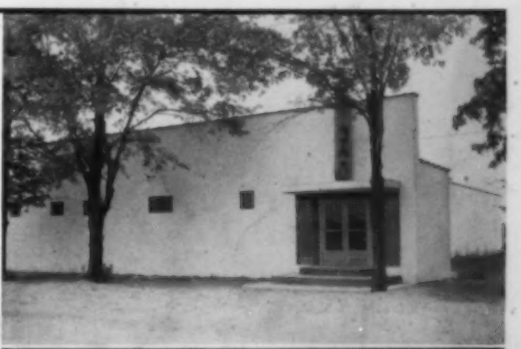

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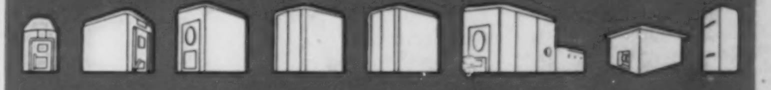

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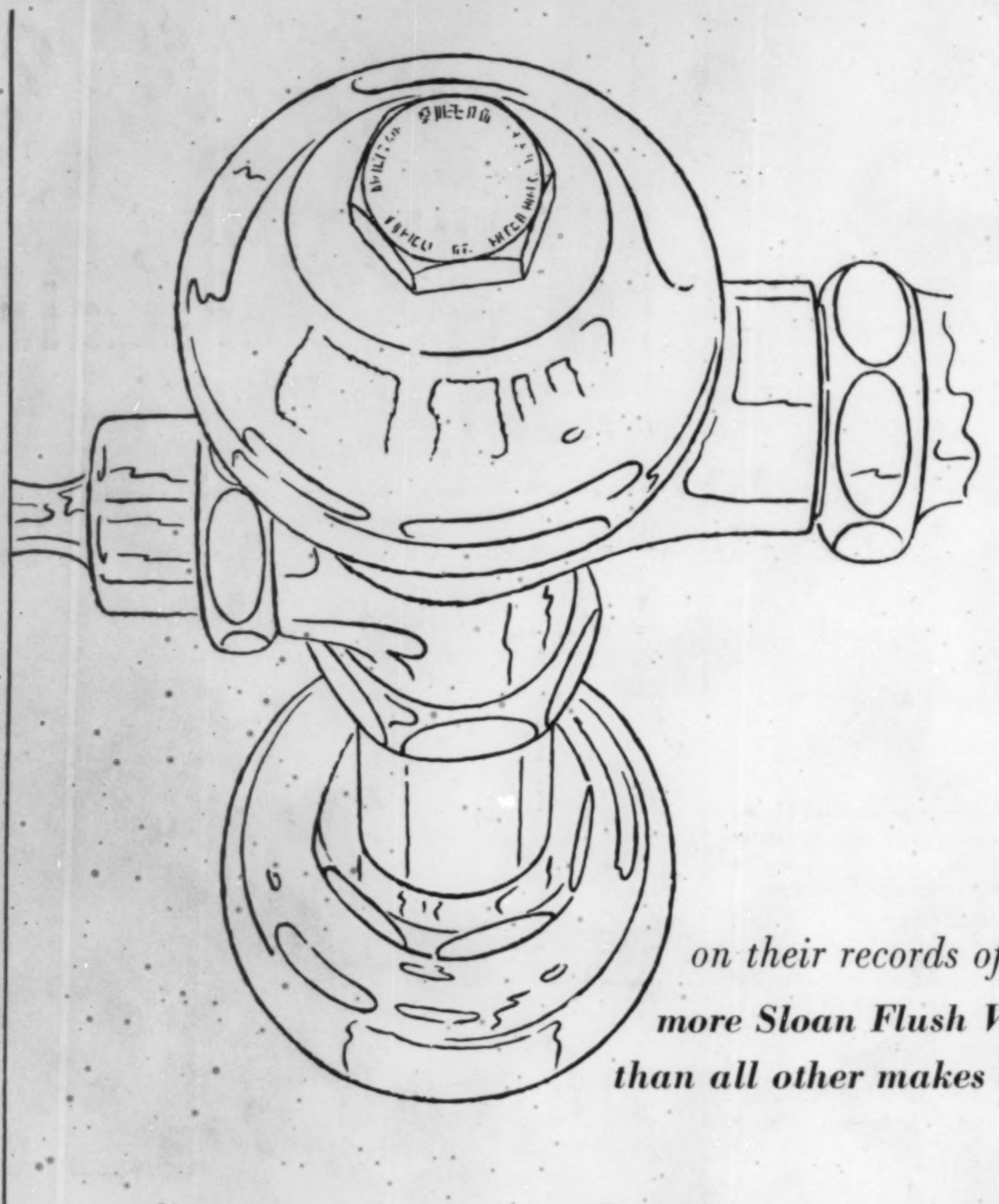

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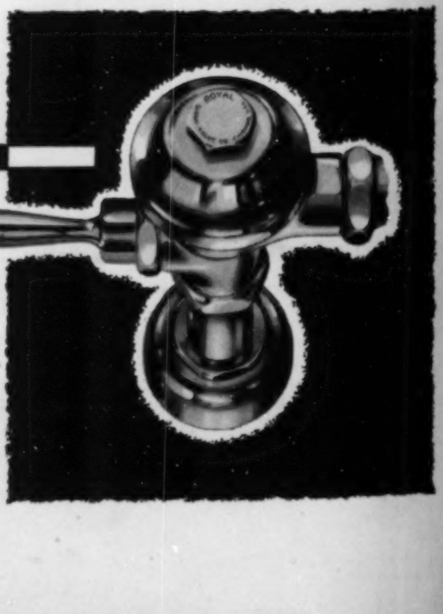

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